Math in Focus™

The Singapore Approach

Reteach

5A

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Marshall Cavendish Education

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CHAPTER 1

Whole Numbers

Worksheet 1 Numbers to 10,000,000

Write the value represented by the ◯s.

Example

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
◯◯◯ ◯◯	◯◯◯ ◯◯◯ ◯◯	◯◯◯ ◯	◯◯	◯◯◯ ◯◯◯ ◯◯◯	◯◯◯ ◯◯◯ ◯
↓	↓	↓	↓	↓	↓
5 hundred thousands	8 ten thousands	4 thousands	2 hundreds	9 tens	7 ones

1.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
◯◯◯ ◯◯◯ ◯◯	◯◯	◯◯◯ ◯◯	◯◯◯	◯◯◯ ◯◯◯	◯◯◯ ◯◯◯ ◯◯
↓	↓	↓	↓	↓	↓
_____	_____	_____	_____	_____	_____

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Write each number in standard form.

Example

two hundred seventy-five thousand, three hundred eighty-one

275,381 ← **standard form**

2. thirty-two thousand, four hundred ninety-one _____

3. eight hundred thirteen thousand _____

4. three hundred sixty thousand, three hundred forty-eight _____

5. six hundred four thousand, nine hundred nine _____

Write each number in word form.

Example

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
6	5	9	1	4	0

six hundred fifty-nine thousand — one hundred forty

The **word form** of the number is six hundred fifty-nine thousand, one hundred forty.

6. 76,830 _____

7. 438,586 _____

8. 890,704 _____

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Worksheet 2 Numbers to 10,000,000

Write the value represented by the ◯s.

Example

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
◯◯◯	◯◯	◯◯◯ ◯◯◯	◯	◯◯◯ ◯◯◯ ◯	◯◯◯	◯◯◯ ◯◯
↓	↓	↓	↓	↓	↓	↓
3 millions	2 hundred thousands	6 ten thousands	1 thousand	7 hundreds	3 tens	5 ones

1.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
◯◯◯ ◯◯◯ ◯	◯	◯◯◯ ◯	◯◯◯ ◯◯◯ ◯◯◯	◯◯◯ ◯◯◯	◯◯	◯◯◯ ◯◯◯ ◯◯
↓	↓	↓	↓	↓	↓	↓
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

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Write each number in standard form.

Example

three million, four hundred eighty-nine thousand, five hundred twenty-six 3,489,526

2. four million, two hundred twenty-one thousand, nine hundred fourteen _____

3. two million, seven hundred eight thousand, forty-five _____

4. seven million, fifty-eight thousand, four hundred nine _____

Write each number in word form.

Example

2,654,320 two million, six hundred fifty-four thousand, three hundred twenty

5. 84,495 _____

6. 4,628,315 _____

7. 9,032,160 _____

8. 6,020,078 _____

9. 5,016,804 _____

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Worksheet 3 Place Value

Complete. Use the place-value chart.

Example

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
5	6	3	8	2	4	7

In 5,638,247:

the digit 2 stands for 200.

the digit 6 stands for 600,000.

the digit 5 stands for 5,000,000.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
3	2	7	4	5	1	6

In 3,274,516:

1. the digit 1 stands for _____.

2. the digit 4 stands for _____.

3. the digit 2 stands for _____.

4. the digit 3 stands for _____.

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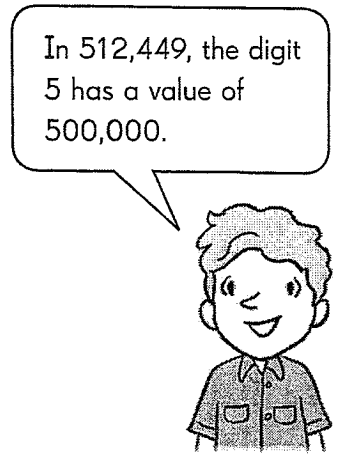
Write the value of the digit 5 in each number.

	Number	Value of Digit 5
	512,449	500,000
5.	751,008	
6.	5,108,009	



Complete. Use the place-value chart.

Example

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
8	2	7	0	9	3	1

In 8,270,931:

the digit 3 is in the tens place.

the digit 7 is in the ten thousands place.

the digit 8 is in the millions place.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
4	2	6	1	9	5	7

In 4,261,957:

7. the digit 1 is in the _____ place.

8. the digit 2 is in the _____ place.

9. the digit 4 is in the _____ place.

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Complete.

Example

In 2,409,318 the digit 2 is in the millions place.

10. In 215,789, the digit _____ is in the thousands place.

11. In 672,381, the digit _____ is in the hundred thousands place.

12. In 8,237,695, the digit _____ is in the millions place.

13. In 4,197,358, the digit _____ is in the ten thousands place.

Complete.

Example

4,000,000 + 300,000 + 20,000 + 5,000 + 700 + 90 + 8

= 4,325,798

14. 40,000 + 5,000 + 100 + 8 = _____

15. 60,000 + 3,000 + 5 = _____

16. 500,000 + 30,000 + 6,000 + 800 + 2 = _____

17. 9,000,000 + 700,000 + 40,000 + 1,000 + 300 + 80 = _____

18. 1,000,000 + 500,000 + 8,000 + 800 + 5 = _____

19. 8,000,000 + 900,000 + 40,000 + 40 + 9 = _____

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Express each number in expanded form. Fill in the blanks.

Example

3,742,859 = 3,000,000 + 700,000 + 40,000 + 2,000 +
800 + 50 + 9

expanded form of 3,742,859

20. 23,748 = _____ + _____ + 700 + _____ + 8

21. 81,059 = _____ + 1,000 + 50 + _____

22. 725,491 = _____ + _____ + 5,000 + _____ +
_____ + 90 + _____

23. 5,061,734 = _____ + _____ + 1,000 + _____ +
30 + _____

24. 8,204,573 = _____ + _____ + 4,000 + 500 +
70 + _____

25. 2,680,307 = 2,000,000 + _____ + 80,000 + _____ +
_____

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Worksheet 4 Comparing Numbers to 10,000,000

Compare the numbers. Then fill in the blanks with *greater than* or *less than*.

1. 31,824 is _____ 32,428.

2. 56,035 is _____ 56,117.

Complete the place-value chart. Then use it to compare the numbers.

Example

2,485,092 and 2,391,406

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
2	4	8	5	0	9	2
2	3	9	1	4	0	6

2,391,406 is less than 2,485,092.

2,391,406 < 2,485,092

Compare the value of each digit from left to right.
> means **greater than** and
< means **less than**.

3. 5,126,432 and 5,102,204

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

5,126,432 is _____ 5,102,204.

5,126,432 ◯ 5,102,204

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Compare the values of the digits in the millions place. Then compare the values of the digits in the hundred thousands place if necessary.

Complete.

4. 4,572,369 6,572,936 _____ is greater.

5. 3,400,369 2,907,369 _____ is greater.

6. 5,482,176 5,248,998 _____ is lesser.

7. 6,104,258 6,041,852 _____ is lesser.

Circle the greater number.

8. 285,012 739,246

9. 1,687,198 1,841,007

Circle the greatest number.

10. 1,250,409 1,205,409 502,409

11. 6,458,692 6,548,692 5,684,269

Order the numbers from least to greatest.

12. 2,360,518 2,409,518 788,999

_____

13. 7,569,483 8,000,002 6,787,157

_____

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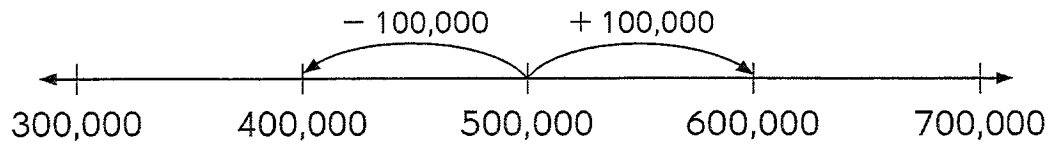
Complete. Use the number line to help you.

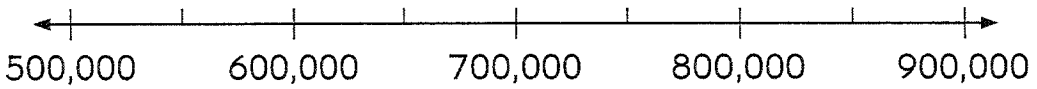
Example



100,000 more than 500,000 is 600,000.

100,000 less than 500,000 is 400,000.

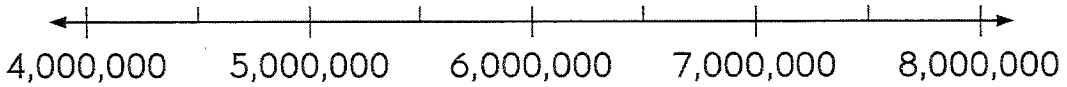
14.



50,000 more than 700,000 is _____.

50,000 less than 700,000 is _____.

15.



500,000 more than 6,000,000 is _____.

500,000 less than 6,000,000 is _____.

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Answer each question.

Example

What is 2,000,000 more than 5,000,000? 7,000,000

What is 2,000,000 less than 5,000,000? 3,000,000

16. What is 500,000 more than 5,000,000? _____

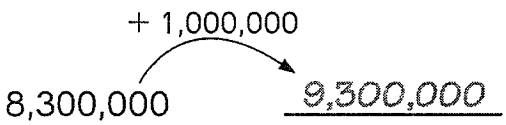
17. What is 500,000 less than 5,000,000? _____

18. What is 1,500,000 more than 8,000,000? _____

19. What is 1,500,000 less than 8,000,000? _____

Add.

Example



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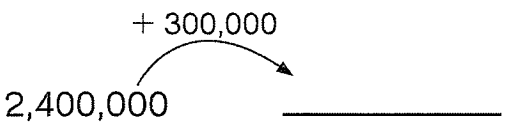

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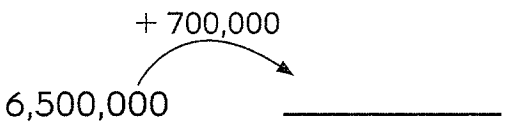

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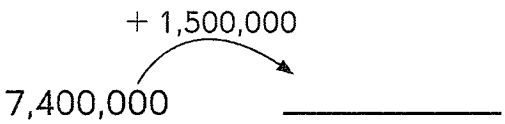

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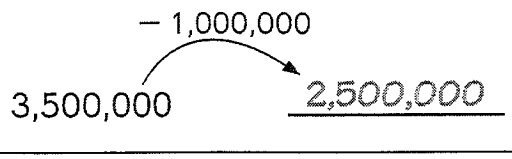
Subtract.

Example



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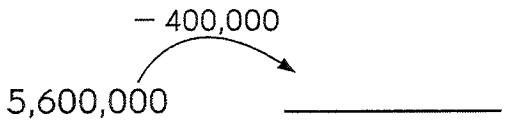

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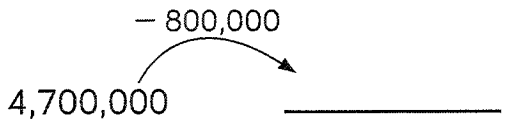

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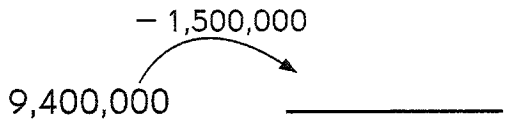
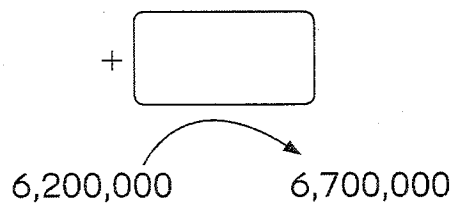


Complete.

26.



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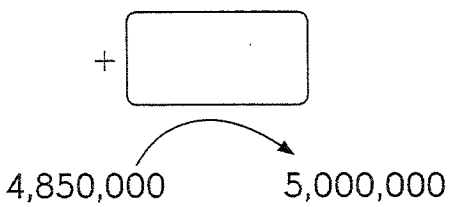

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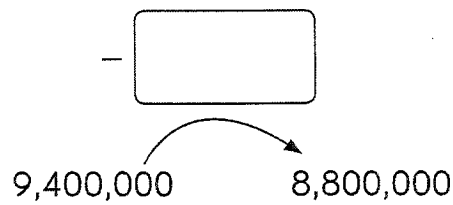

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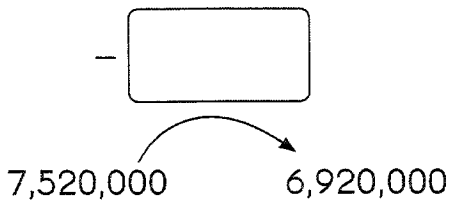

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Find the rule. Then complete each number pattern.

Example

1,105,236 1,405,236 1,705,236 2,005,236 2,305,236

Add 300,000 to 1,105,236 to get 1,405,236.
Add 300,000 to 1,405,236 to get 1,705,236.
The rule is to add 300,000 to find the next number in the pattern.

30. 150,000 160,000 170,000 _____ _____

Rule: _____

31. 7,650,000 7,150,000 6,650,000 _____ _____

Rule: _____

32. 1,200,000 2,300,000 3,400,000 _____ _____

Rule: _____

Complete each number pattern.

33. 42,000 52,000 62,000 _____ _____

34. 50,700 50,600 50,500 _____ _____

35. 545,000 525,000 _____ _____ 465,000

36. 3,609,707 3,509,707 _____ _____ 3,209,707

37. _____ _____ 4,127,304 4,128,404 4,129,504

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Worksheet 5 Rounding and Estimating

Write the digit in the hundreds place.

1. 3,649 _____ **2.** 8,278 _____

3. 9,501 _____ **4.** 7,499 _____

Write the digit in the thousands place.

5. 9,643 _____ **6.** 7,882 _____

7. 8,076 _____ **8.** 2,007 _____

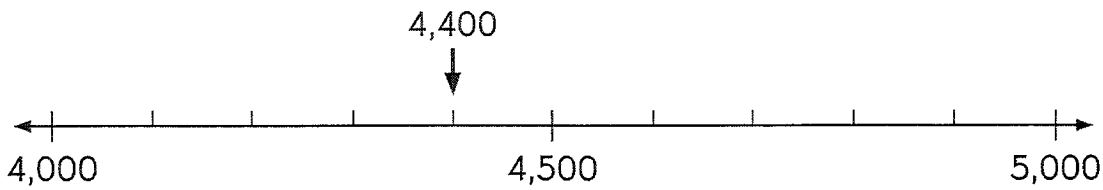
Round each number to the nearest hundred.

9. 4,586 _____ **10.** 6,245 _____

11. 1,353 _____ **12.** 7,129 _____

Look at the number line. Then complete the sentences and round each number to the nearest thousand.

Example



4,400 is nearer to 4,000 than to 5,000.

4,400 rounded to the nearest thousand is 4,000.

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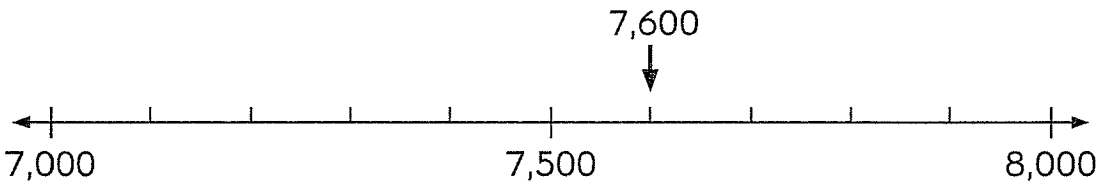
Look at the number line. Then complete the sentences and round each number to the nearest thousand.

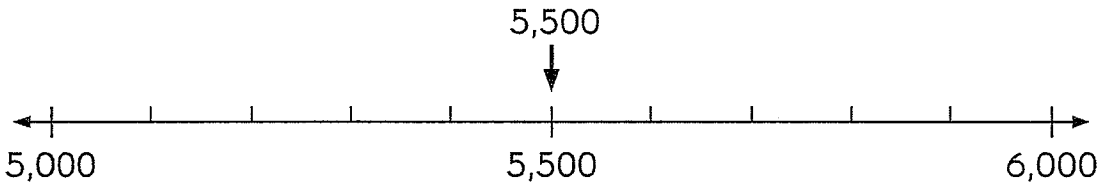
13.



7,600 is nearer to _____ than to _____.

7,600 rounded to the nearest thousand is _____.

14.



5,500 is halfway between _____ and _____.

5,500 rounded to the nearest thousand is _____.

Round each number to the nearest thousand.

15. 7,945 _____ **16.** 6,498 _____

17. 8,092 _____ **18.** 9,504 _____

Estimate the sum and difference by rounding to the nearest hundred.

19. 274 + 516 **20.** 735 − 581

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Estimate each sum by rounding to the nearest thousand.

Example

2,458 + 4,786

2,458 rounds to 2,000.

4,786 rounds to 5,000.

2,458 + 4,786 is about 2,000 + 5,000 = 7,000.

21. 4,862 + 5,309

4,862 rounds to _____.

5,309 rounds to _____.

4,862 + 5,309 is about _____ + _____ = _____.

22. 5,364 + 3,289

5,364 rounds to _____.

3,289 rounds to _____.

5,364 + 3,289 is about _____ + _____ = _____.

23. 6,881 + 2,708

6,881 rounds to _____.

2,708 rounds to _____.

6,881 + 2,708 is about _____ + _____ = _____.

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Estimate each difference by rounding to the nearest thousand.

Example

5,819 − 5,259

5,819 rounds to 6,000.

5,259 rounds to 5,000.

5,819 − 5,259 is about 6,000 − 5,000 = 1,000.

24. 2,396 − 1,457

2,396 rounds to _____.

1,457 rounds to _____.

2,396 − 1,457 is about _____ − _____ = _____.

25. 7,643 − 1,226

7,643 rounds to _____.

1,226 rounds to _____.

7,643 − 1,226 is about _____ − _____ = _____.

26. 5,892 − 3,607

5,892 rounds to _____.

3,607 rounds to _____.

5,892 − 3,607 is about _____ − _____ = _____.

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Write the leading digit of each number.

27. 7,536 _____ **28.** 1,094 _____

Estimate the sum and difference using front-end estimation.

29. 387 + 604 **30.** 941 − 525

Use front-end estimation with adjustment to estimate each sum.

Example

4,489 + 2,768

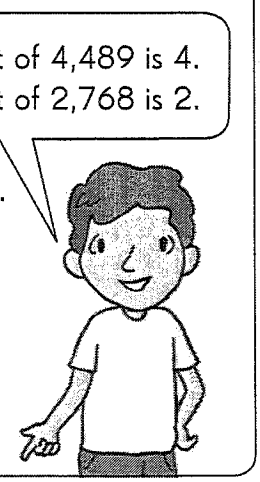
4,000 + 2,000 = 6,000

489 + 768 is about 400 + 700 = 1,100.

1,100 rounded to the nearest thousand is 1,000.

6,000 + 1,000 = 7,000

4,489 + 2,768 is about 7,000.



31. 5,528 + 3,476

_____ + _____ = _____

528 + 476 is about _____ + _____ = _____.

_____ rounded to the nearest thousand is _____.

_____ + _____ = _____

5,528 + 3,476 is about _____.

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Use front-end estimation with adjustment to estimate each sum.

32. 7,128 + 2,544

33. 4,500 + 7,652

34. 3,252 + 4,481 + 1,530

_____ + _____ + _____ = _____

252 + 481 + 530 is about _____ + _____ + _____

= _____.

_____ rounded to the nearest thousand is _____.

_____ + _____ = _____

3,252 + 4,481 + 1,530 is about _____.

35. 7,608 + 2,454 + 8,599

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Use front-end estimation with adjustment to estimate each difference.

Example

5,845 − 2,313

5,000 − 2,000 = 3,000

The leading digit of 5,845 is 5.
The leading digit of 2,313 is 2.

845 − 313 is about 800 − 300 = 500.

500 rounded to the nearest thousand is 1,000.

3,000 + 1,000 = 4,000

5,845 − 2,313 is about 4,000.

36. 9,720 − 4,138

_____ − _____ = _____

720 − 138 is about _____ − _____ = _____.

_____ rounded to the nearest thousand is _____.

_____ + _____ = _____

9,720 − 4,138 is about _____.

37. 7,947 − 2,350

_____ − _____ = _____

947 − 350 is about _____ − _____ = _____.

_____ rounded to the nearest thousand is _____.

_____ + _____ = _____

7,947 − 2,350 is about _____.

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Use front-end estimation with adjustment to estimate each difference.

38. 5,625 − 3,482

39. 7,420 − 5,033

40. 9,814 − 4,256

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Use front-end estimation with adjustment to estimate each difference.

Example

8,354 − 6,940

8,000 − 6,000 = 2,000

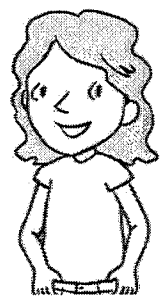
940 − 354 is about 900 − 300 = 600.

600 rounded to the nearest thousand is 1,000.

2,000 − 1,000 = 1,000

8,354 − 6,940 is about 1,000.

The leading digit of 8,354 is 8.
The leading digit of 6,940 is 6.



41. 9,267 − 3,739

_____ − _____ = _____

739 − 267 is about _____ − _____ = _____.

_____ rounded to the nearest thousand is _____.

_____ − _____ = _____

9,267 − 3,739 is about _____.

42. 8,327 − 4,682

_____ − _____ = _____

682 − 327 is about _____ − _____ = _____.

_____ rounded to the nearest thousand is _____.

_____ − _____ = _____.

8,327 − 4,682 is about _____.

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Use front-end estimation with adjustment to estimate each difference.

43. 6,259 − 3,795

44. 3,308 − 1,749

45. 8,427 − 6,973

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Name: _____ Date: _____

Estimate each product.

Example

3,842 × 5

3,842 rounds to 4,000.

4,000 × 5 = 20,000

3,842 × 5 is about 20,000.

46. 6,239 × 7

6,239 rounds to _____.

_____ × 7 = _____

6,239 × 7 is about _____.

47. 2,506 × 8

2,506 rounds to _____.

_____ × 8 = _____

2,506 × 8 is about _____.

48. 3,257 × 4

49. 8,753 × 6

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Estimate each quotient.

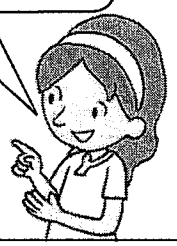
Example

4,387 ÷ 5

4,500 ÷ 5 = 900

4,387 ÷ 5 is about 900.

4,000 and 5 are **compatible numbers.** They are easy to divide. 4,500 and 5 are also compatible numbers. 4,387 is nearer to 4,500 than to 4,000. So, choose 4,500.



50. 3,508 ÷ 9

_____ ÷ 9 = _____

3,508 ÷ 9 is about _____.

51. 6,126 ÷ 7

_____ ÷ 7 = _____

6,126 ÷ 7 is about _____.

52. 2,362 ÷ 4

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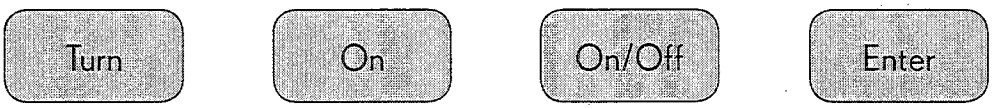
CHAPTER 2 Whole Number Multiplication and Division

Worksheet 1 Using a Calculator

Use your calculator for these exercises.

1. Circle the button you press to turn on your calculator.



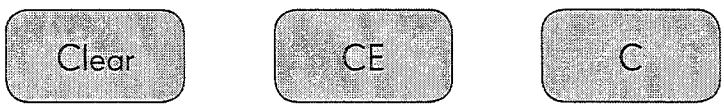
2. Enter these digits on your calculator.

1 2 3 4 5 6 7 8

Write the number displayed on your calculator.

_____

3. Circle the button you press to clear the display on your calculator.



4. Enter each number on your calculator.

a. 4,782 **b.** 678,435

c. 3,917,403 **d.** 7,008,009

How do the numbers displayed on the calculator differ from the printed numbers?

_____

_____

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5. Which sequence of buttons should you press to find the value of 259 + 4,783? Check (✔) the box next to the correct answer. Then use your calculator to find the sum.

Press this sequence of buttons:

2	5	9	+	4	7	8	3	☐

2	5	9	+	4	8	7	3	=	☐

C	2	5	9	+	4	7	8	3	=	☐

259 + 4,783 = _____

Use your calculator to add or subtract.

6. 5,728 + 6,954 = _____

7. 9,824 − 2,387 = _____

8. $8,389 + $7,402 = $_____

9. 6,083 kg − 4,709 kg = _____ kg

Check the box next to the correct answer.

10. How do you find the difference between 4,269 and 1,597?

4,269 + 1,597 ☐

4,269 − 1,597 ☐

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Name: _____ Date: _____

Check the box next to the correct answer.

11. How do you find the sum of 6,677 and 23,567?

6,677 + 23,567 ☐

23,567 − 6,677 ☐

Use your calculator to answer these questions.

12. What is the sum of 7,625 + 12,496? _____

13. What is the difference between 5,697 and 4,283? _____

Fill in the missing buttons. Then press the sequence of buttons to find the product or quotient.

Example

142 × 309 = 43,878

C	1	4	2	×	3	0	9	=

14. 325 × 67 = _____

C					6	7		

15. 1,652 ÷ 4 = _____

C							4		

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Name: _____ Date: _____

Use your calculator to multiply.

16. $2{,}873 \times 42 =$ _____

17. $1{,}473 \times 9 =$ _____

18. $428 \times 375 =$ _____

Use your calculator to divide.

19. $8{,}710 \div 5 =$ _____

20. $8{,}150 \div 25 =$ _____

21. $220{,}128 \div 32 =$ _____

Use your calculator to answer these questions.

22. What is the product of 748 and 254? _____

23. What is the quotient of 7,470 divided by 6? _____

Use your calculator to solve these problems.

24. Grandpa donates a total of $78,645 equally to 5 charities. How much money does each charity receive?

25. The area of the floor in a rectangular kitchen is 209,196 square centimeters. The area of each square tile is 36 square centimeters. How many square tiles are needed to tile the kitchen floor?

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Worksheet 2 Multiplying by Tens, Hundreds, or Thousands

Complete.

1. 10 = _____ ten

2. 80 = _____ tens

Multiply.

Example

9 × 10 = 90

3. 5 × 10 = _____

4. 83 × 10 = _____

5. 726 × 10 = _____

6. 1,005 × 10 = _____

Complete.

Example

25 × 50 = 25 × 5 tens

= (25 × 5) × 10

= 125 × 10

= 1,250

7. 17 × 30 = 17 × _____ tens

= (_____ × _____) × 10

= _____ × 10

= _____

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Name: _____ **Date:** _____

Complete.

8. $148 \times 60 = 148 \times$ _____ tens

$= ($_____ $\times$ _____$) \times 10$

$=$ _____ $\times 10$

$=$ _____

9. $219 \times 20 = 219 \times$ _____ tens

$= ($_____ $\times$ _____$) \times 10$

$=$ _____ $\times 10$

$=$ _____

10. $3{,}456 \times 70 = 3{,}456 \times$ _____ tens

$= ($_____ $\times$ _____$) \times 10$

$=$ _____ $\times 10$

$=$ _____

11. $2{,}135 \times 60 = 2{,}135 \times$ _____ tens

$= ($_____ $\times$ _____$) \times 10$

$=$ _____ $\times 10$

$=$ _____

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Name: _____ Date: _____

Complete.

12. 100 = _____ hundred

13. 500 = _____ hundreds

Multiply.

Example

7 × 100 = 700

14. 8 × 100 = _____

15. 74 × 100 = _____

16. 153 × 100 = _____

17. 5,980 × 100 = _____

Complete.

Example

16 × 200 = 16 × 2 hundreds

= (16 × 2) × 100

= 32 × 100

= 3,200

18. 72 × 300 = 72 × _____ hundreds

= (_____ × _____) × 100

= _____ × 100

= _____

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Name: _____ **Date:** _____

Complete.

19. $326 \times 700 = 326 \times$ _____ hundreds

$= ($_____ $\times$ _____$) \times 100$

$=$ _____ $\times 100$

$=$ _____

20. $548 \times 900 = 548 \times$ _____ hundreds

$= ($_____ $\times$ _____$) \times 100$

$=$ _____ $\times 100$

$=$ _____

21. $1{,}325 \times 800 = 1{,}325 \times$ _____ hundreds

$= ($_____ $\times$ _____$) \times 100$

$=$ _____ $\times 100$

$=$ _____

22. $3{,}046 \times 600 = 3{,}046 \times$ _____ hundreds

$= ($_____ $\times$ _____$) \times 100$

$=$ _____ $\times 100$

$=$ _____

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Name: _____ Date: _____

Complete.

23. 1,000 = _____ thousand

24. 6,000 = _____ thousands

Multiply.

Example

5 × 1,000 = 5,000

25. 4 × 1,000 = _____

26. 28 × 1,000 = _____

27. 205 × 1,000 = _____

28. 3,247 × 1,000 = _____

Complete.

Example

25 × 3,000 = 25 × 3 thousands

= (25 × 3) × 1,000

= 75 × 1,000

= 75,000

29. 69 × 4,000 = 69 × _____ thousands

= (_____ × _____) × 1,000

= _____ × 1,000

= _____

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Name: _____ **Date:** _____

Complete.

30. $217 \times 6{,}000 = 217 \times$ _____ thousands

$= ($_____ $\times$ _____$) \times 1{,}000$

$=$ _____ $\times 1{,}000$

$=$ _____

31. $528 \times 9{,}000 = 528 \times$ _____ thousands

$= ($_____ $\times$ _____$) \times 1{,}000$

$=$ _____ $\times 1{,}000$

$=$ _____

32. $1{,}324 \times 7{,}000 = 1{,}324 \times$ _____ thousands

$= ($_____ $\times$ _____$) \times 1{,}000$

$=$ _____ $\times 1{,}000$

$=$ _____

33. $2{,}305 \times 4{,}000 = 2{,}305 \times$ _____ thousands

$= ($_____ $\times$ _____$) \times 1{,}000$

$=$ _____ $\times 1{,}000$

$=$ _____

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Round to the nearest ten.

34. 56 = _____ **35.** 23 = _____

Round to the nearest hundred.

36. 348 = _____ **37.** 750 = _____

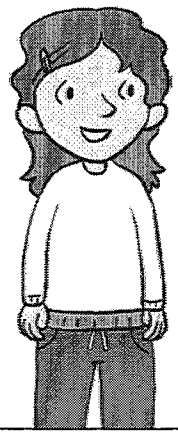
Round the 2-digit number to the nearest ten and the 3-digit number to the nearest hundred. Then multiply to estimate the product.

Example

672 × 81 is about

700 × 80 = 56,000

Round 672 to the nearest hundred and 81 to the nearest ten.
672 rounds to 700.
81 rounds to 80.



38. 87 × 63 is about _____ × _____ = _____.

39. 94 × 247 is about _____ × _____ = _____.

40. 249 × 63 is about _____ × _____ = _____.

41. 364 × 73 is about _____ × _____ = _____.

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Round to the nearest thousand.

42. 2,705 = _____ **43.** 8,391 = _____

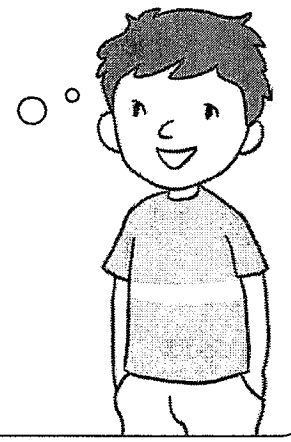
Round the 2-digit number to the nearest ten and the 4-digit number to the nearest thousand. Then multiply to estimate the product.

Example

1,289 × 48 is about

1,000 × 50 = 50,000

Round 1,289 to the nearest thousand and 48 to the nearest ten. 1,289 rounds to 1,000. 48 rounds to 50.



44. 5,612 × 32 is about _____ × _____ = _____.

45. 3,409 × 45 is about _____ × _____ = _____.

46. 92 × 1,485 is about _____ × _____ = _____.

47. 79 × 4,243 is about _____ × _____ = _____.

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Worksheet 3 Multiplying by 2-Digit Numbers

Complete.

1. $38 \times 20 =$ _____ $\times$ _____ tens

2. $26 \times 40 =$ _____ $\times$ _____ tens

3. $57 \times 60 =$ _____ $\times$ _____ tens

4. $48 \times 90 =$ _____ $\times$ _____ tens

Complete.

5. $25 \times 30 =$ _____ $\times$ _____ tens

$=$ _____ tens

$=$ _____ $\times 10$

$=$ _____

6. $46 \times 50 =$ _____ $\times$ _____ tens

$=$ _____ tens

$=$ _____ $\times 10$

$=$ _____

7. $38 \times 40 =$ _____ $\times$ _____ tens

$=$ _____ tens

$=$ _____ $\times 10$

$=$ _____

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Multiply by tens.

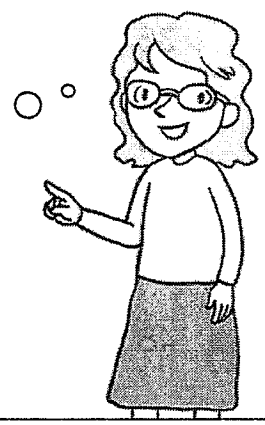
Example

$23 \times 40 =$ 920

$$\begin{array}{r} 2\ 3 \\ \times\ 4\ 0 \\ \hline 9\ 2\ 0 \end{array}$$

Do this first:

$$\begin{array}{r} 2\ 3 \\ \times\ \ \ 4 \\ \hline 9\ 2 \end{array}$$

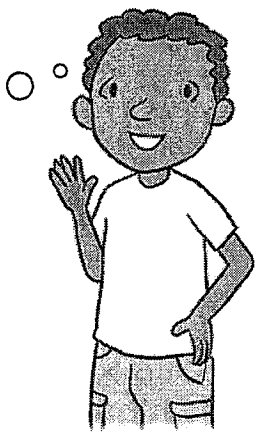


8. $46 \times 30 =$ _____

$$\begin{array}{r} 4\ 6 \\ \times\ 3\ 0 \\ \hline \end{array}$$

Do this first:

$$\begin{array}{r} 4\ 6 \\ \times\ \ \ 3 \\ \hline \end{array}$$



9. $58 \times 60 =$ _____

$$\begin{array}{r} 5\ 8 \\ \times\ 6\ 0 \\ \hline \end{array}$$

Do this first:

$$\begin{array}{r} 5\ 8 \\ \times\ \ \ 6 \\ \hline \end{array}$$

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Name: _____ Date: _____

Multiply. Estimate to check your answer.

Example

$23 \times 29 =$ 667

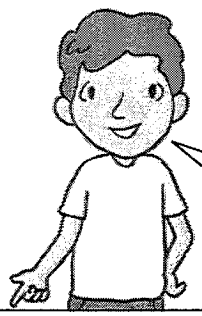
$$\begin{array}{r} 2\ 3 \\ \times\ 2\ 9 \\ \hline 2\ 0\ 7 \\ 4\ 6\ 0 \\ \hline 6\ 6\ 7 \end{array}$$

← 23×9

← 23×20

← add

Estimate:
23 rounds to 20.
29 rounds to 30.
$20 \times 30 = 600$



The estimate shows the answer 667 is reasonable.

10. $48 \times 62 =$ _____

$$\begin{array}{r} 4\ 8 \\ \times\ 6\ 2 \\ \hline \square \\ \square \\ \hline \square \end{array}$$

← 48×2

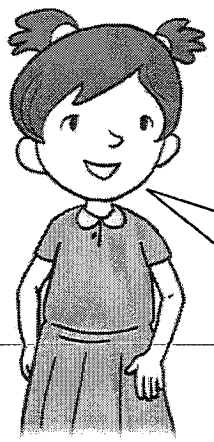
← 48×60

← add

Estimate:
48 rounds to _____.

62 rounds to _____.

_____ × _____ = _____



The estimate shows the answer _____ is reasonable.

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Multiply. Estimate to check your answer.

11. $92 \times 27 =$ _____

$$\begin{array}{r} 9\ 2 \\ \times\ 2\ 7 \\ \hline \square \\ \square \\ \hline \square \end{array}$$

Estimate:
92 × 27 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

12. $52 \times 81 =$ _____

$$\begin{array}{r} 5\ 2 \\ \times\ 8\ 1 \\ \hline \square \\ \square \\ \hline \square \end{array}$$

Estimate:
52 × 81 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

13. $48 \times 27 =$ _____

14. $63 \times 59 =$ _____

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Multiply. Estimate to check your answer.

Example

138 × 32 = 4,416

```
  1 3 8
×   3 2
-------
  2 7 6   ← 138 × 2
4, 1 4 0  ← 138 × 30
-------
4, 4 1 6  ← add
```

Estimate:
138 rounds to 100.
32 rounds to 30.
100 × 30 = 3,000

The estimate shows the answer 4,416 is reasonable.

15. 127 × 53 = _____

```
  1 2 7
×   5 3
-------
[     ]   ← 127 × 3
[     ]   ← 127 × 50
-------
[     ]   ← add
```

Estimate:
127 rounds to _____.

53 rounds to _____.

_____ × _____ = _____

The estimate shows the answer _____ is reasonable.

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Multiply. Estimate to check your answer.

16. $203 \times 72 =$ _____

$$\begin{array}{r} 2\ 0\ 3 \\ \times\ \ 7\ 2 \\ \hline \square \\ \square \\ \hline \square \end{array}$$

Estimate:
203 × 72 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

17. $458 \times 34 =$ _____

$$\begin{array}{r} 4\ 5\ 8 \\ \times\ \ 3\ 4 \\ \hline \square \\ \square \\ \hline \square \end{array}$$

Estimate:
458 × 34 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

18. $574 \times 26 =$ _____

19. $728 \times 36 =$ _____

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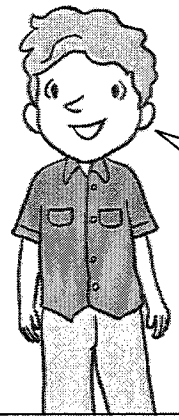
Multiply. Estimate to check your answer.

Example

1,492 × 22 = 32,824

```
  1, 4 9 2
×       2 2
-----------
  2, 9 8 4   ← 1,492 × 2
2 9, 8 4 0   ← 1,492 × 20
-----------
3 2, 8 2 4   ← add
```

Estimate:
1,492 rounds to 1,000.
22 rounds to 20.
1,000 × 20 = 20,000



The estimate shows the answer 32,824 is reasonable.

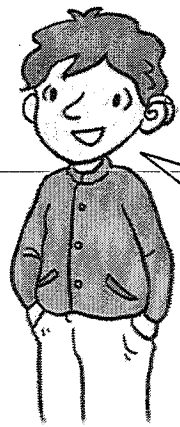
20. 1,825 × 48 = _____

```
  1, 8 2 5
×       4 8
-----------
[        ]   ← 1,825 × 8
[        ]   ← 1,825 × 40
-----------
[        ]   ← add
```

Estimate:
1,825 rounds to _____.

48 rounds to _____.

_____ × _____ = _____



The estimate shows the answer _____ is reasonable.

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Multiply. Estimate to check your answer.

21. 2,175 × 62 = _____

2, 1 7 5
× 6 2

Estimate:
2,175 × 62 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

22. 4,120 × 77 = _____

4, 1 2 0
× 7 7

Estimate:
4,120 × 77 is about _____ × _____

= _____.

The estimate shows the answer _____ is reasonable.

23. 1,608 × 43 = _____

24. 4,637 × 59 = _____

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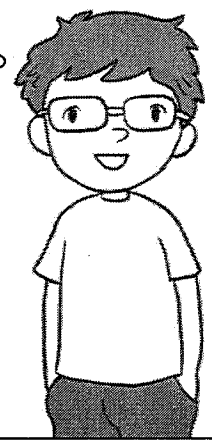
Worksheet 4 Dividing by Tens, Hundreds, or Thousands

Divide.

Example

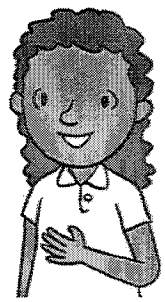
80 ÷ 10 = 8

Think of multiplication.
8 × 10 = 80
So, 80 ÷ 10 = 8.



1. 120 ÷ 10 = _____

Think of multiplication.
_____ × 10 = _____
So, _____ ÷ 10 = _____.



2. 720 ÷ 10 = _____

3. 970 ÷ 10 = _____

4. 2,860 ÷ 10 = _____

5. 3,790 ÷ 10 = _____

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Complete.

Example

850 ÷ 50 = (850 ÷ 10) ÷ 5

= 85 ÷ 5

= 17

6. 680 ÷ 40 = (_____ ÷ 10) ÷ _____

= _____ ÷ _____

= _____

7. 1,920 ÷ 60 = (_____ ÷ 10) ÷ _____

= _____ ÷ _____

= _____

8. 2,880 ÷ 80 = (_____ ÷ 10) ÷ _____

= _____ ÷ _____

= _____

Divide.

9. 420 ÷ 70 = _____

10. 560 ÷ 80 = _____

11. 630 ÷ 90 = _____

12. 2,160 ÷ 90 = _____

13. 2,100 ÷ 50 = _____

14. 1,120 ÷ 40 = _____

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Complete.

Example

1,800 ÷ 200 = (1,800 ÷ 100) ÷ 2

= 18 ÷ 2

= 9

15. 5,600 ÷ 400 = (_____ ÷ 100) ÷ _____

= _____ ÷ _____

= _____

16. 8,400 ÷ 700 = (_____ ÷ 100) ÷ _____

= _____ ÷ _____

= _____

17. 27,600 ÷ 600 = (_____ ÷ 100) ÷ _____

= _____ ÷ _____

= _____

Divide.

18. 6,300 ÷ 700 = _____ **19.** 6,400 ÷ 800 = _____

20. 4,800 ÷ 600 = _____ **21.** 8,100 ÷ 900 = _____

22. 44,100 ÷ 900 = _____ **23.** 37,500 ÷ 500 = _____

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Complete.

Example

21,000 ÷ 3,000 = (21,000 ÷ 1,000) ÷ 3

= 21 ÷ 3

= 7

24. 52,000 ÷ 4,000 = (_____ ÷ 1,000) ÷ _____

= _____ ÷ _____

= _____

25. 91,000 ÷ 7,000 = (_____ ÷ 1,000) ÷ _____

= _____ ÷ _____

= _____

26. 144,000 ÷ 6,000 = (_____ ÷ 1,000) ÷ _____

= _____ ÷ _____

= _____

Divide.

27. 84,000 ÷ 7,000 = _____

28. 128,000 ÷ 8,000 = _____

29. 138,000 ÷ 6,000 = _____

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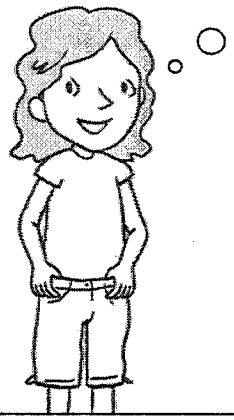
Estimate.

Example

195 ÷ 48 is about

200 ÷ 50 = 4.



48 rounds to 50.
200 is close to 195 and can be divided by 50.

divisor → 50)200 ← dividend

quotient → 4

30. 138 ÷ 72

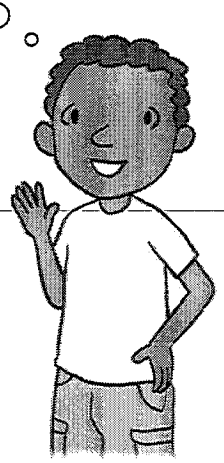
138 ÷ 72 is about

_____ ÷ _____ = _____.

72 rounds to _____.

_____ is close to 138 and

can be divided by _____.



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Estimate.

31. 314 ÷ 84

314 ÷ 84 is about

_____ ÷ _____ = _____.

84 rounds to _____.

_____ is close to 314 and

can be divided by _____.

32. 1,080 ÷ 58

33. 4,752 ÷ 24

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Worksheet 5 Dividing by 2-Digit Numbers

Divide.

Example

120 ÷ 20 = 6

$$\begin{array}{r} 6 \\ 20\overline{)120} \\ \underline{120} \\ 0 \end{array}$$

1. 850 ÷ 50 = _____

2. 3,150 ÷ 90 = _____

3. 1,200 ÷ 80 = _____

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Divide.

Example

240 ÷ 30 = 8

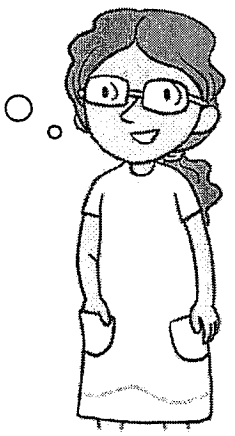
3 × 8 = 24
30 × 8 = 24**0**
The answer is 8.

4. 280 ÷ 40 = _____

4 × _____ = 28

40 × _____ = 280

The answer is _____.



5. 6,300 ÷ 70 = _____

6. 4,500 ÷ 90 = _____

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Divide.

Example

200 ÷ 30 = 6 R 20

$$\begin{array}{r} 6 \\ 30\overline{)200} \\ 180 \\ \hline 20 \end{array}$$

remainder

200 cannot be divided exactly by 30. So I cannot cancel the zeros to find the answer. I have to use long division.

7. 290 ÷ 30 = _____ R _____

$$\begin{array}{r} \square \\ 30\overline{)2\ 9\ 0} \\ \square\square\square \\ \hline \square\square \end{array}$$

8. 570 ÷ 70 = _____ R _____

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Divide.

Example

77 ÷ 22 = 3 R 11

$$\begin{array}{r} 3 \\ 22\overline{)77} \\ 66 \\ \hline 11 \end{array}$$

Estimate the quotient:
22 rounds to 20.

$$\begin{array}{r} 3 \\ 20\overline{)77} \end{array} \Rightarrow \begin{array}{r} 3 \\ 22\overline{)77} \\ 66 \\ \hline 11 \end{array}$$

→ 11 is less than 22.

The estimated quotient is just right.

Example

59 ÷ 18 = 3 R 5

$$\begin{array}{r} 3 \\ 18\overline{)59} \\ 54 \\ \hline 5 \end{array}$$

Estimate the quotient:
18 rounds to 20.

$$\begin{array}{r} 2 \\ 20\overline{)59} \end{array} \Rightarrow \begin{array}{r} 2 \\ 18\overline{)59} \\ 36 \\ \hline 23 \end{array}$$

→ 23 is greater than 18.

The estimated quotient is too small.
Try 3.

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Divide.

Example

45 ÷ 12 = 3 R 9

$$12\overline{)45}\quad 3,\ 36,\ 9$$

Estimate the quotient:
12 rounds to 10.

$$10\overline{)45} \Rightarrow 4 \qquad 12\overline{)45}$$

48 → 48 is greater than 45.

The estimated quotient is too big.
Try 3.

9. 81 ÷ 35 = _____ R _____ $35\overline{)81}$

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Divide.

10. $79 \div 26 =$ _____ R _____ $26\overline{)79}$

11. $92 \div 24 =$ _____ R _____

12. $67 \div 17 =$ _____ R _____

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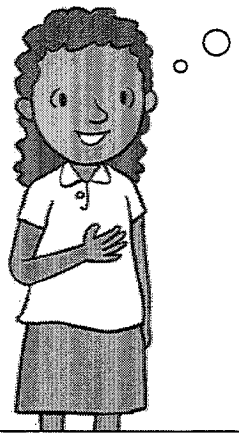
Divide.

Example

175 ÷ 20 = 8 R 15



Notice that when we divide a 3-digit number by a 2-digit number, if the first two digits of the dividend are less than the divisor, the quotient will be a 1-digit number.

divisor → 20)175 ← dividend; quotient → 8

13. 279 ÷ 40 = _____ R _____ 40)279

14. 351 ÷ 72 = _____ R _____

15. 412 ÷ 58 = _____ R _____

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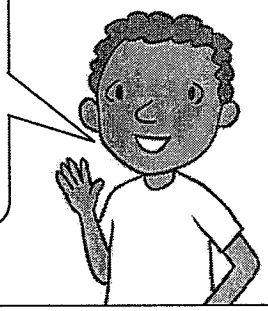
Divide.

Example

254 ÷ 20 = 12 R 14

$$\begin{array}{r} 12 \\ 20\overline{)254} \\ 20 \\ \hline 54 \\ 40 \\ \hline 14 \end{array}$$

When we divide a 3-digit number by a 2-digit number, if the first two digits of the dividend are greater than the divisor, the quotient will be a 2-digit number.
For 254 ÷ 20, 25 is greater than 20.
So, the quotient will be a 2-digit number.



16. 417 ÷ 30 = _____ R _____ $30\overline{)417}$

17. 915 ÷ 42 = _____ R _____

18. 758 ÷ 36 = _____ R _____

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Divide.

19. 1,259 ÷ 50 = _____ R _____

$50\overline{)1,259}$

20. 1,386 ÷ 70 = _____ R _____

$70\overline{)1,386}$

21. 2,485 ÷ 42 = _____ R _____

22. 3,152 ÷ 54 = _____ R _____

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Divide.

23. 1,843 ÷ 15 = _____ R _____ $15\overline{)1,843}$

24. 2,063 ÷ 18 = _____ R _____ $18\overline{)2,063}$

25. 3,248 ÷ 21 = _____ R _____

26. 3,819 ÷ 27 = _____ R _____

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Worksheet 6 Order of Operations

Find the value of each numeric expression.

Example

$9 + 8 - 4$

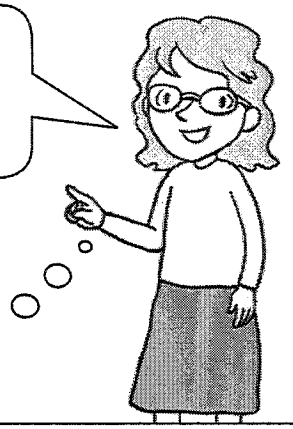
A **numeric expression** contains only numbers and operation signs.

$= 17 - 4$

$= 13$

Work from left to right when there are only addition and subtraction.

Step 1 $9 + 8 = 17$
Step 2 $17 - 4 = 13$



1. $15 + 8 - 12 =$ _____ $-$ _____

$=$ _____

2. $28 - 13 + 17$

3. $21 - 19 + 16$

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Find the value of each numeric expression.

Example

$15 + 8 - 12 + 7$

$= \underline{23} - \underline{12} + \underline{7}$

$= \underline{11} + \underline{7}$

$= \underline{18}$

4. $22 + 7 - 15 + 9 = \_\_\_\_\_ - \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

5. $18 - 9 + 26 - 14$

6. $64 - 27 + 13 - 28$

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Find the value of each numeric expression.

Example

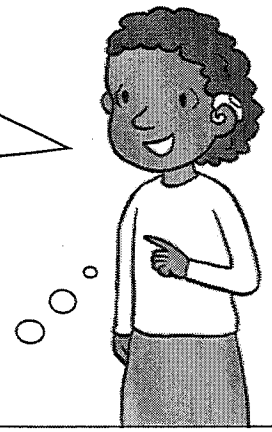
$8 \times 6 \div 2$

$= 48 \div 2$

$= 24$

Work from left to right when there are only multiplication and division.

Step 1 $8 \times 6 = 48$
Step 2 $48 \div 2 = 24$



7. $12 \times 9 \div 6 =$ _____ $\div$ _____

$=$ _____

8. $25 \div 5 \times 15$

9. $252 \div 6 \times 18$

10. $14 \times 9 \div 21$

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Find the value of each numeric expression.

Example

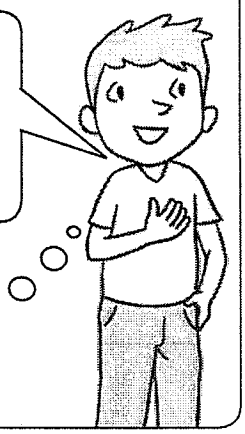
$13 + 12 \times 4$

$= \underline{13} + \underline{48}$

$= \underline{61}$

Work from left to right. Carry out multiplication and division before addition and subtraction.

Step 1 $12 \times 4 = 48$
Step 2 $13 + 48 = 61$



11. $210 - 120 \div 10$

$=$ _____ $-$ _____

$=$ _____

12. $174 + 240 \div 3$

$=$ _____ $+$ _____

$=$ _____

13. $72 \times 6 - 18$

$=$ _____ $-$ _____

$=$ _____

14. $476 \div 7 - 15$

$=$ _____ $-$ _____

$=$ _____

15. $124 \times 8 + 59$

$=$ _____ $+$ _____

$=$ _____

16. $756 \div 9 + 142$

$=$ _____ $+$ _____

$=$ _____

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Find the value of each numeric expression.

17. $24 + 36 \times 3$

18. $176 - 480 \div 8$

19. $212 + 368 \div 4$

20. $472 \div 8 - 26$

21. $108 \times 9 + 137$

22. $826 \div 7 + 247$

Find the value of each numeric expression.

23. $17 \times 2 - 75 \div 5$

24. $28 \times 3 + 72 \div 9$

25. $128 \div 4 - 156 \div 6$

26. $4 \times 79 - 225 \div 5$

27. $217 + 96 \div 8 - 139$

28. $414 + 176 \div 8 \times 3$

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Find the value of each numeric expression.

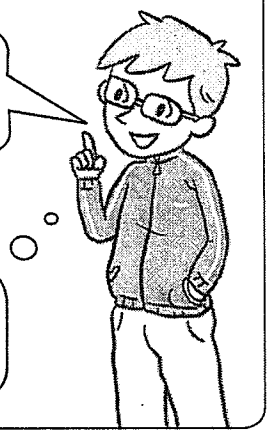
Example

$9 \times (12 + 23)$

$= 9 \times 35$

$= 315$

Carry out the operation in the parentheses first.



Step 1 $12 + 23 = 35$
Step 2 $9 \times 35 = 315$

29. $164 + (135 - 78)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

30. $36 - (150 - 126)$

$= \_\_\_\_\_ - \_\_\_\_\_$

$= \_\_\_\_\_$

31. $408 - (219 + 39)$

$= \_\_\_\_\_ - \_\_\_\_\_$

$= \_\_\_\_\_$

32. $6 \times (124 - 77)$

$= \_\_\_\_\_ \times \_\_\_\_\_$

$= \_\_\_\_\_$

33. $476 \div (3 + 4)$

$= \_\_\_\_\_ \div \_\_\_\_\_$

$= \_\_\_\_\_$

34. $8 \times (273 - 169)$

$= \_\_\_\_\_ \times \_\_\_\_\_$

$= \_\_\_\_\_$

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Find the value of each numeric expression.

35. $8 \times (24 + 15)$

36. $100 \div (5 \times 5)$

37. $43 + (37 \times 8)$

38. $324 \div (102 - 96)$

39. $253 + (162 - 59)$

40. $552 \div (5 + 3)$

41. $517 - (309 + 107)$

42. $9 \times (500 - 256)$

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Find the value of each numeric expression.

43. $24 + (35 + 77) \div 8$

$= \_\_\_\_\_ + \_\_\_\_\_ \div \_\_\_\_\_$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

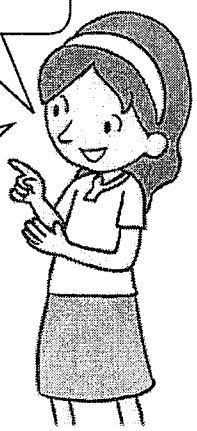
Step 1 Carry out the operation in the parentheses.
Step 2 Divide.
Step 3 Add.

44. $12 \times 7 - (145 \div 5)$

$= \_\_\_\_\_ - \_\_\_\_\_$

$= \_\_\_\_\_$

Step 1 Carry out the operation in the parentheses.
Step 2 Multiply.
Step 3 Subtract.



45. $4 \times (248 \div 4) + 8$

$= \_\_\_\_\_ \times \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

46. $483 \div (82 - 75) + 326$

$= \_\_\_\_\_ \div \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

Find the value of each numeric expression.

47. $99 - 43 + (28 \div 7)$

48. $(59 - 23) - 4 \times 8$

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Worksheet 7 Real-World Problems: Multiplication and Division

Fill in the circle next to the correct answer.

1. Samantha had 48 stamps. She gave 15 stamps to Cindy. Samantha then bought another 9 stamps. How many stamps did Samantha have in the end?

Ⓐ $48 + 15 + 9$ Ⓑ $48 - 15 - 9$

Ⓒ $48 - 15 + 9$ Ⓓ $48 + 15 - 9$

2. Mrs. Lee put 4 flowers into each of her 5 vases. She had 12 flowers left. How many flowers did she have altogether?

Ⓐ $4 \times 5 + 12$ Ⓑ $(4 + 12) \times 5$

Ⓒ $4 \times (5 + 12)$ Ⓓ $4 \times 5 \times 12$

3. There were 6 rows of tables in a room. In each row, there were 8 tables. Then Julie rearranged the tables so that there were only 4 rows. How many tables were there in each row in the end?

Ⓐ $6 \times (8 \times 4)$ Ⓑ $4 \times 6 \div 8$

Ⓒ $6 \times 4 \times 8$ Ⓓ $6 \times 8 \div 4$

4. Mr. Nathan bought a piano for $6,194. He made an initial payment of $1,250. He made equal, monthly payments for the next 6 months. How much did Mr. Nathan pay each month?

Ⓐ $\$6{,}194 - \$1{,}250 \div 6$

Ⓑ $\$6{,}194 - \$1{,}250 \times 6$

Ⓒ $(\$6{,}194 - \$1{,}250) \div 6$

Ⓓ $(\$6{,}194 - \$1{,}250) \times 6$

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Solve.

5. When a number is divided by 57, the answer is 72.
What is the number?

_____ ÷ 57 = 72

The number is _____.

6. When a number is multiplied by 46, the answer is 5,520.
What is the number?

7. The product of two numbers is 7,098. One of the numbers is 78.
Find the other number.

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Solve.

8. Tran can type 56 words in a minute. How many words can he type in 45 minutes?

9. A business owner paid a total of $7,392 in 48 months for her inventory. She paid the same amount of money each month. How much money did she pay each month?

10. Mrs. Gerber is preparing fruit skewers for a neighborhood block party. She has 275 pieces of fruits. She skewers 4 pieces of fruit on each stick. How many sticks does she need?

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Solve.

11. Jorgen bought 6 boxes of cranberries and 7 boxes of blueberries. Each box contained 125 berries. How many berries did he buy in all?

12. Anna owed a bank $12,750. She paid the bank $475 every month. How much money did Anna still owe the bank after 22 months?

13. The table shows the pay rates for the staff at a café. Harry works at the café for 8 hours on each weekday from Monday to Friday. He also works for 5 hours each Saturday and Sunday. How much money does Harry make in a week?

Weekdays	$15 per hour
Weekends	$25 per hour

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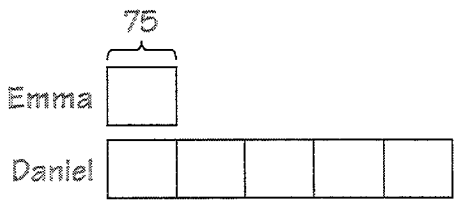
Worksheet 8 Real-World Problems: Multiplication and Division

Draw a model to represent the statements.

Example

Emma has 75 paper clips.
Daniel has 5 times as many paper clips as Emma.



1. Kathy's salary is $720 per month.
Her father's salary is 3 times as much as Kathy's salary.

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Solve. Draw models to help you.

2. Taylor has 83 stamps. Alyssa has 3 times as many stamps as Taylor.

a. Draw a model to show the number of stamps each child has.

b. How many stamps does Alyssa have?

c. How many stamps do they have altogether?

3. Container A has 4 times as much water as Container B. Container C has 3 times as much water as Container A. Container B has 87 gallons of water. How much water is in the three containers altogether?

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Solve. Draw models to help you.

4. Box A contains 53 cubes and has a total mass of 1,760 grams. Box B contains 18 cubes and has a total mass of 1,620 grams. The mass of Box A is the same as the mass of box B. Every cube has the same mass. Find the mass of each cube.

5. Jessica and Lillian had the same amount of money. Jessica gave $1,140 to a charity and Lillian gave $580 to a different charity. In the end, Lillian had 9 times as much money as Jessica. How much money did each girl have at first?

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Solve. Draw models to help you.

6. A crate contains apples, pears, and oranges. There are 184 apples and pears, and 248 apples and oranges. There are 3 times as many oranges as pears. How many apples are in the crate?

7. Chris is 4 times as old as Peter. Sara is 6 years younger than Chris. The total age of Chris, Peter, and Sara is 66 years. How old is Sara?

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CHAPTER 3

Fractions and Mixed Numbers

Worksheet 1 Adding Unlike Fractions

Circle the unlike fraction in each set.

1. $\frac{3}{10}$, $\frac{2}{5}$, $\frac{7}{10}$

2. $\frac{2}{9}$, $\frac{5}{9}$, $\frac{1}{3}$

Write a like fraction and an unlike fraction for each fraction.

		Like Fraction	Unlike Fraction
3.	$\frac{1}{5}$		
4.	$\frac{3}{10}$		
5.	$\frac{4}{7}$		
6.	$\frac{5}{9}$		

Identify the like fractions. Put them into sets.

7.

$\frac{1}{3}$ $\frac{5}{9}$ $\frac{3}{8}$ $\frac{2}{7}$ $\frac{4}{5}$ $\frac{8}{9}$ $\frac{3}{7}$ $\frac{3}{4}$ $\frac{1}{2}$ $\frac{5}{6}$ $\frac{1}{9}$ $\frac{7}{8}$

Set 1 Set 2 Set 3

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List the first six multiples of each number.

Example

Multiples of 5: 5, 10, 15, 20, 25, 30

8. Multiples of 3: _____

9. Multiples of 4: _____

Each rectangle on the right is divided into smaller equal parts by the dotted lines. Find the equivalent fractions for the shaded parts of the rectangle.

Example

$\frac{1}{2} = \frac{2}{4}$

$\frac{1}{2}$ and $\frac{2}{4}$ are **equivalent fractions.**
They have the same value.

10.

$\frac{2}{3} = \frac{\square}{6}$

11.

$\frac{4}{5} = \frac{\square}{\square}$

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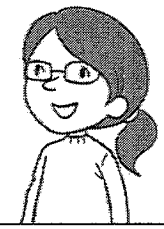
List the equivalent fractions of the first fraction. Stop when you get a fraction that has the same denominator as the second fraction. Then find the least common denominator of both fractions.

Example

$\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$

$\frac{1}{6}$

The **least common multiple** of 2 and 6 is 6. The **least common denominator** of $\frac{1}{2}$ and $\frac{1}{6}$ is 6.



The least common denominator of $\frac{1}{2}$ and $\frac{1}{6}$ is 6.

12. $\frac{1}{3} =$ _____

$\frac{2}{9}$

The least common denominator of $\frac{1}{3}$ and $\frac{2}{9}$ is _____.

13. $\frac{3}{4} =$ _____

$\frac{1}{16}$

The least common denominator of $\frac{3}{4}$ and $\frac{1}{16}$ is _____.

14. $\frac{2}{3} =$ _____

$\frac{2}{15}$

The least common denominator of $\frac{2}{3}$ and $\frac{2}{15}$ is _____.

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List the equivalent fractions of each fraction. Stop when you get equivalent fractions with the same denominator. Then find the least common denominator of both fractions.

Example

$\frac{1}{2} =$ $\frac{2}{4} = \frac{3}{6}$

$\frac{1}{3} =$ $\frac{2}{6}$

The least common denominator of $\frac{1}{2}$ and $\frac{1}{3}$ is 6.

15. $\frac{1}{3} =$ _____

$\frac{3}{4} =$ _____

The least common denominator of $\frac{1}{3}$ and $\frac{3}{4}$ is _____.

16. $\frac{1}{4} =$ _____

$\frac{1}{6} =$ _____

The least common denominator of $\frac{1}{4}$ and $\frac{1}{6}$ is _____.

17. $\frac{5}{6} =$ _____

$\frac{7}{8} =$ _____

The least common denominator of $\frac{5}{6}$ and $\frac{7}{8}$ is _____.

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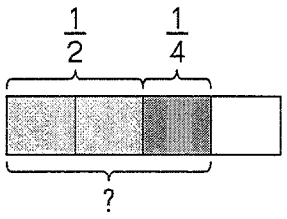
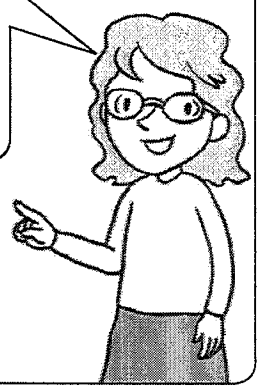
Shade and label each model to show the fractions. Then complete the addition sentence.

Example



To add unlike fractions, change them to fractions with the same denominator. The least common denominator of $\frac{1}{2}$ and $\frac{1}{4}$ is 4.



$\frac{1}{2} + \frac{1}{4} = \boxed{\frac{2}{4}} + \boxed{\frac{1}{4}} = \boxed{\frac{3}{4}}$

18.

$\frac{1}{3} + \frac{2}{9} = \boxed{\quad} + \boxed{\quad} = \boxed{\quad}$

19.

$\frac{2}{5} + \frac{3}{10} = \boxed{\quad} + \boxed{\quad} = \boxed{\quad}$

20.

$\frac{3}{4} + \frac{1}{12} = \boxed{\quad} + \boxed{\quad} = \boxed{\quad} = \boxed{\quad}$

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Add. Express each sum in simplest form.

Example

$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \boxed{\frac{1}{8}}$

$= \boxed{\frac{5}{8}}$

21. $\frac{1}{4} + \frac{1}{2} = \frac{1}{4} + \square$

$= \square$

22. $\frac{1}{10} + \frac{1}{5}$

23. $\frac{2}{3} + \frac{1}{6}$

24. $\frac{3}{4} + \frac{1}{8}$

25. $\frac{1}{9} + \frac{2}{3}$

26. $\frac{1}{4} + \frac{1}{12}$

27. $\frac{2}{3} + \frac{1}{12}$

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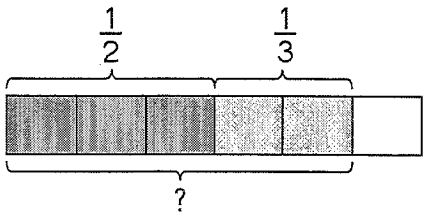
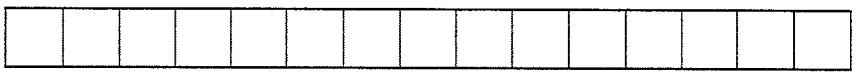
Shade and label each model to show the fractions. Then complete the addition sentence.

Example



$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

28.

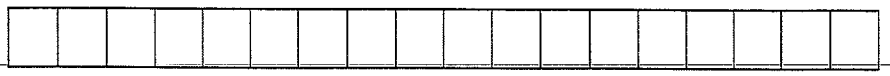


$\frac{1}{3} + \frac{1}{5} = \square + \square = \square$

29.

$\frac{3}{7} + \frac{1}{2} = \square + \square = \square$

30.



$\frac{4}{9} + \frac{1}{2} = \square + \square = \square$

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Add.

Example

$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \boxed{\frac{3}{12}}$

$= \boxed{\frac{7}{12}}$

31. $\frac{1}{5} + \frac{1}{2} = \frac{2}{10} + \square$

$= \square$

32. $\frac{1}{4} + \frac{1}{9}$

33. $\frac{1}{7} + \frac{1}{8}$

34. $\frac{2}{5} + \frac{1}{4}$

35. $\frac{2}{5} + \frac{3}{8}$

36. $\frac{2}{9} + \frac{2}{7}$

37. $\frac{3}{11} + \frac{2}{3}$

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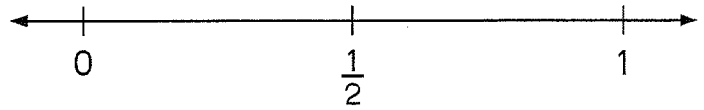
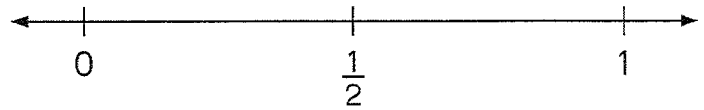
Mark the fractions on the number line.

38. $\frac{1}{3}$

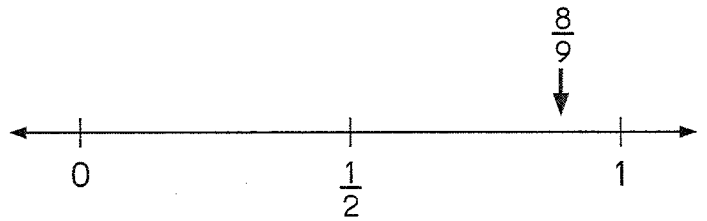


39. $\frac{3}{4}$



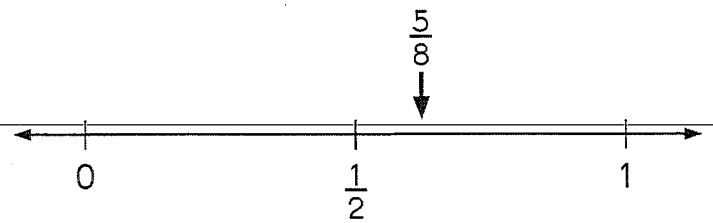
Look at the number line. Round the fraction to 0, $\frac{1}{2}$, or 1.

Example



$\frac{8}{9}$ → 1

40.



$\frac{5}{8}$ → _____

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Use benchmarks to estimate each sum.

Example

$\frac{1}{4} \downarrow + \frac{2}{5} \downarrow$

$0 + \frac{1}{2} = \frac{1}{2}$

Common **benchmarks** for estimating fractions are 0, $\frac{1}{2}$, and 1.

41. $\frac{3}{4} \downarrow + \frac{7}{8} \downarrow$

$\_\_\_ + \_\_\_ = \_\_\_$

42. $\frac{11}{12} \downarrow + \frac{7}{12} \downarrow$

$\_\_\_ + \_\_\_ = \_\_\_$

43. $\frac{5}{9} \downarrow + \frac{5}{12} \downarrow + \frac{10}{11} \downarrow$

$\_\_\_ + \_\_\_ + \_\_\_ = \_\_\_$

44. $\frac{6}{9} + \frac{11}{12}$

45. $\frac{3}{8} + \frac{5}{9}$

46. $\frac{1}{2} + \frac{4}{5} + \frac{8}{9}$

47. $\frac{5}{6} + \frac{6}{7} + \frac{7}{8}$

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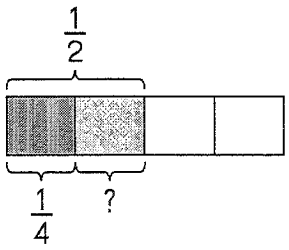
Worksheet 2 Subtracting Unlike Fractions

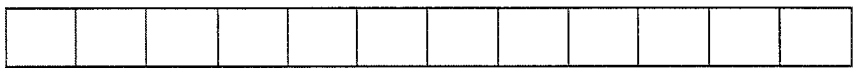
Shade and label each model to show the fractions. Then complete the subtraction sentence.

Example



$\frac{1}{2} - \frac{1}{4} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4}$

1.



$\frac{2}{3} - \frac{5}{12} = \square - \square = \square = \square$

2.

$\frac{7}{9} - \frac{1}{3} = \square - \square = \square$

3.

$\frac{5}{8} - \frac{1}{4} = \square - \square = \square$

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Subtract. Express each difference in simplest form.

Example

$\frac{1}{3} - \frac{1}{9} = \frac{3}{9} - \boxed{\frac{1}{9}}$

$= \boxed{\frac{2}{9}}$

4. $\frac{1}{2} - \frac{1}{8} = \frac{4}{8} - \square$

$= \square$

5. $\frac{1}{5} - \frac{1}{10}$

6. $\frac{5}{6} - \frac{2}{3}$

7. $\frac{7}{8} - \frac{1}{4}$

8. $\frac{3}{4} - \frac{5}{12}$

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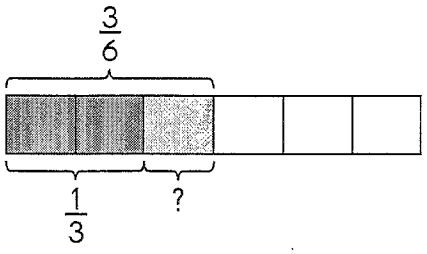
Shade and label each model to show the fractions. Then complete the subtraction sentence.

Example



$\frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$

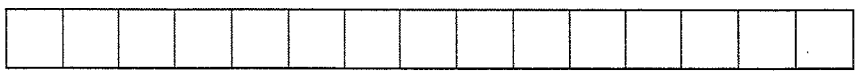
9.

$\frac{1}{3} - \frac{1}{4} = \square - \square = \square$

10.

$\frac{5}{7} - \frac{1}{2} = \square - \square = \square$

11.



$\frac{3}{5} - \frac{1}{3} = \square - \square = \square$

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Subtract.

Example

$\frac{1}{2} - \frac{1}{5} = \frac{5}{10} - \boxed{\frac{2}{10}}$

$= \boxed{\frac{3}{10}}$

12. $\frac{1}{3} - \frac{1}{5} = \frac{5}{15} - \square$

$= \square$

13. $\frac{1}{5} - \frac{1}{6}$

14. $\frac{1}{7} - \frac{1}{8}$

15. $\frac{4}{5} - \frac{1}{4}$

16. $\frac{5}{8} - \frac{3}{5}$

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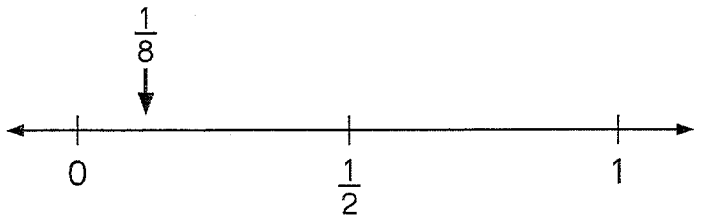
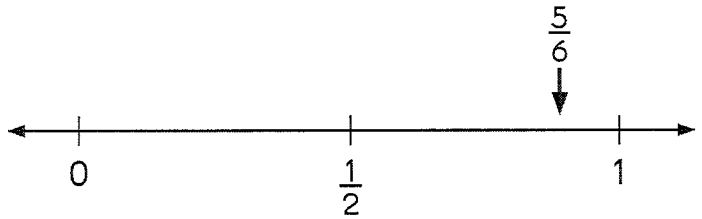
Look at the number line. Round the fraction to 0, $\frac{1}{2}$, or 1.

Example



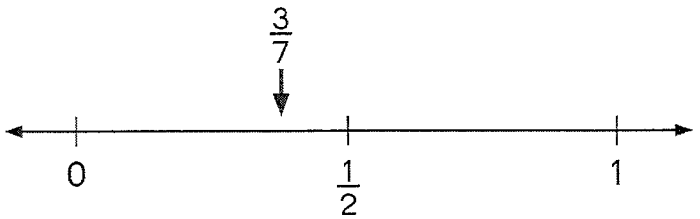
$\frac{1}{8}$ → 0

17.



$\frac{5}{6}$ → _____

18.



$\frac{3}{7}$ → _____

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Use benchmarks to estimate each difference.

Example

$\frac{7}{8} - \frac{4}{7}$

$\downarrow \quad \downarrow$

$1 - \frac{1}{2} = \frac{1}{2}$

Common **benchmarks** for estimating fractions are 0, $\frac{1}{2}$, and 1.

19. $\frac{1}{2} - \frac{1}{4}$

$\downarrow \quad \downarrow$

$\_\_\_ - \_\_\_ = \_\_\_$

20. $\frac{11}{12} - \frac{1}{2}$

$\downarrow \quad \downarrow$

$\_\_\_ - \_\_\_ = \_\_\_$

21. $\frac{5}{6} - \frac{8}{9}$

$\downarrow \quad \downarrow$

$\_\_\_ - \_\_\_ = \_\_\_$

22. $\frac{10}{11} - \frac{5}{12}$

$\downarrow \quad \downarrow$

$\_\_\_ - \_\_\_ = \_\_\_$

23. $\frac{4}{5} - \frac{11}{22}$

24. $\frac{7}{8} - \frac{1}{9}$

25. $\frac{1}{2} - \frac{6}{11}$

26. $\frac{8}{9} - \frac{3}{7}$

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Worksheet 3 Fractions, Mixed Numbers, and Division Expressions

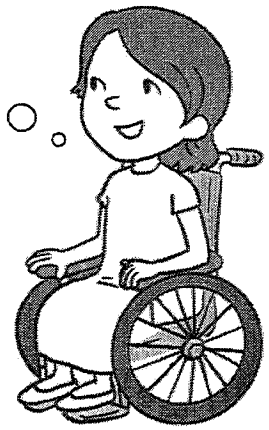
Write each improper fraction as a mixed number.

1. $\frac{4}{3} = \frac{3}{3} + \frac{1}{3}$

$= 1 +$ ☐

$=$ ☐

3 is the denominator. I need a 3 for a numerator.
$4 = 3 + 1$



2. $\frac{6}{5} =$ ☐ $+$ ☐

$= 1 +$ ☐

$=$ ☐

3. $\frac{7}{3}$

4. $\frac{9}{5}$

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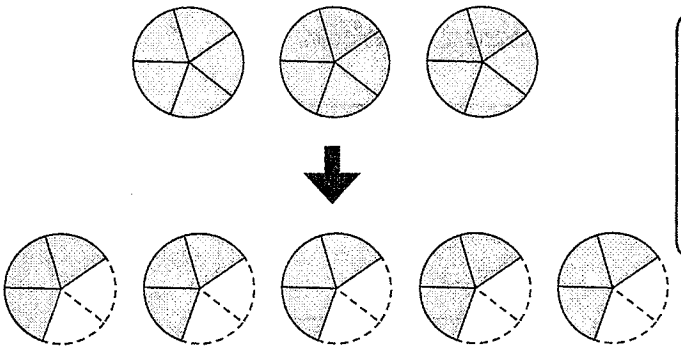
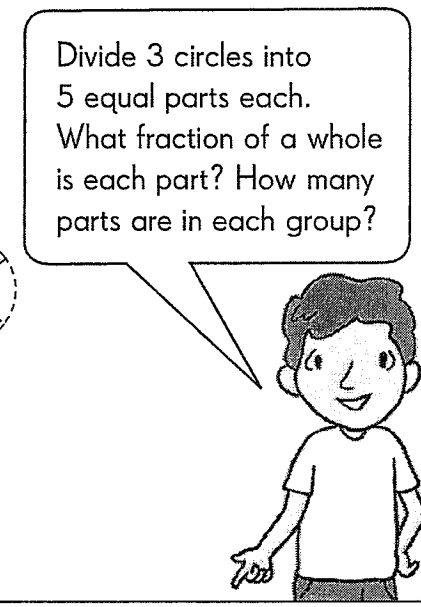
Look at the diagram. Complete.

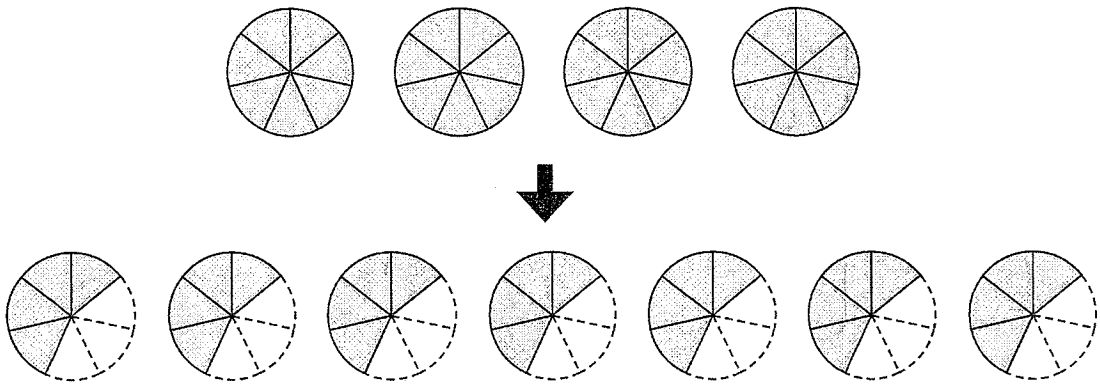
Example





$\underline{\quad 3 \quad} \div \underline{\quad 5 \quad} = \dfrac{\boxed{3}}{\boxed{5}}$

5.



$\underline{\qquad\qquad} \div \underline{\qquad\qquad} = \dfrac{\boxed{}}{\boxed{}}$

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Write each division expression as a fraction.

Example

$2 \div 7 = \frac{2}{7}$

division expression

6. $4 \div 5 = \frac{\square}{\square}$

7. $5 \div 9 = \frac{\square}{\square}$

8. $7 \div 11 = \frac{\square}{\square}$

9. $5 \div 8 = \frac{\square}{\square}$

Write each fraction as a division expression.

Example

$\frac{9}{10} =$ 9 ÷ 10

10. $\frac{3}{8} =$ _____ ÷ _____

11. $\frac{5}{6} =$ _____ ÷ _____

12. $\frac{4}{11} =$ _____ ÷ _____

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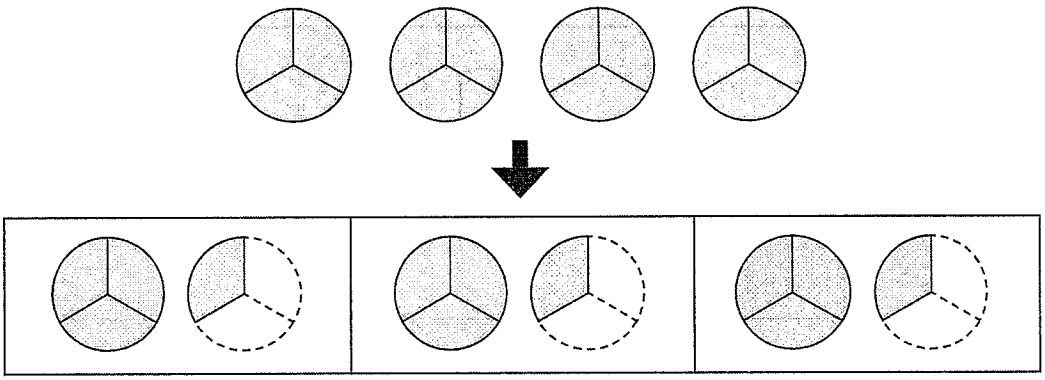
Look at the diagram. Complete.

13.

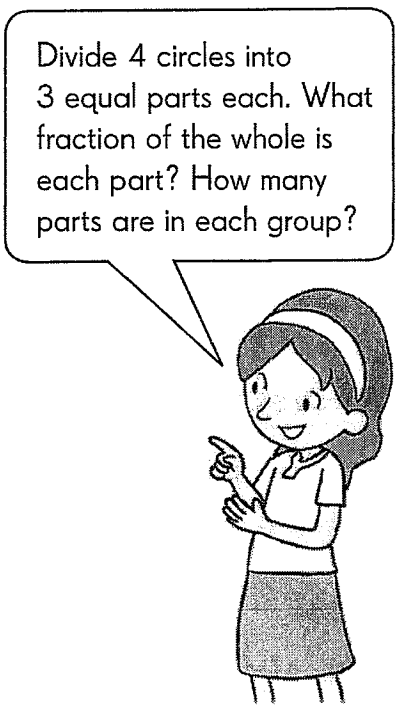


$$\underline{4} \div \underline{3} = \frac{4}{3}$$

$$= \frac{3}{3} + \frac{1}{3}$$

$$= 1 + \frac{\square}{\square}$$

$$= 1\frac{\square}{\square}$$



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Divide. Express your answer as a mixed number.

14. $8 \div 5 = \frac{\square}{\square}$

$= \frac{\square}{\square} + \frac{\square}{\square}$

$= \square + \frac{\square}{\square}$

$= \square \frac{\square}{\square}$

15. $7 \div 2 = \frac{\square}{\square}$

$= \frac{\square}{\square} + \frac{\square}{\square}$

$= \square + \frac{\square}{\square}$

$= \square \frac{\square}{\square}$

16. $10 \div 3$

17. $17 \div 6$

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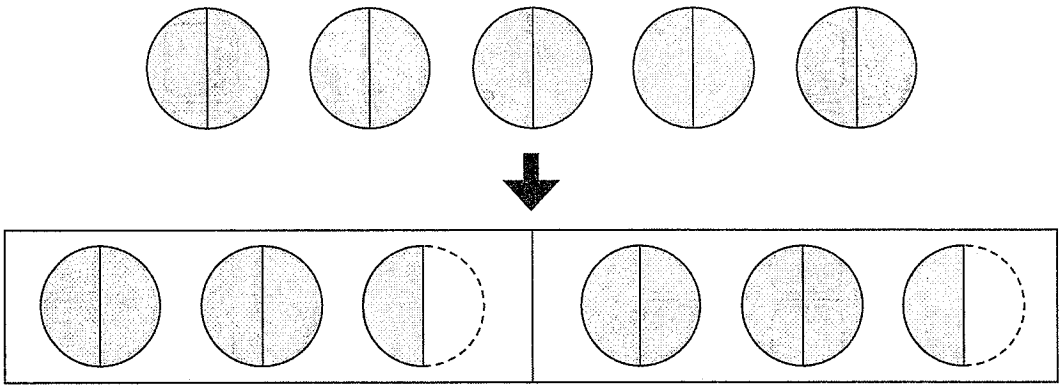
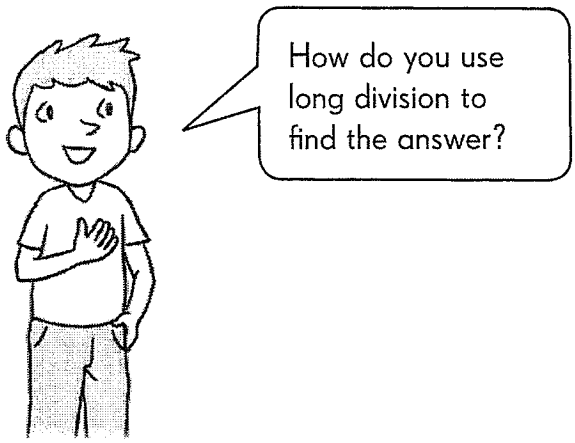
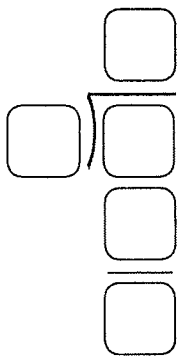
Look at the diagram. Complete.

18.



_____ ÷ _____ = $\square\frac{\square}{\square}$





Divide. Express your answer as a mixed number in simplest form.

19. 9 ÷ 2

20. 14 ÷ 4

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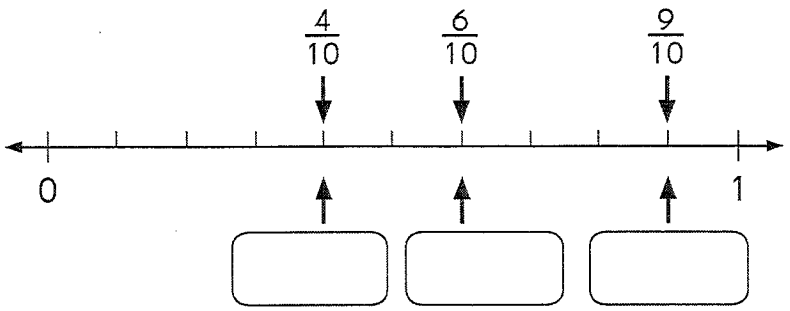
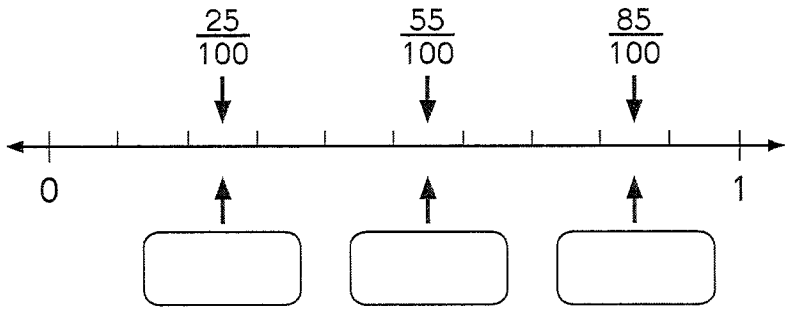
Worksheet 4 Expressing Fractions, Division Expressions, and Mixed Numbers as Decimals

Write each fraction shown on the number line as a decimal.

1.



2.



Write each fraction as a decimal.

3. $\frac{7}{10} =$ _____

4. $\frac{3}{10} =$ _____

5. $\frac{15}{100} =$ _____

6. $\frac{43}{100} =$ _____

7. $\frac{82}{100} =$ _____

8. $\frac{66}{100} =$ _____

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Write each fraction as a decimal.

Example

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2}$$

$$= \frac{6}{10}$$

$$= 0.6$$

9. $\frac{4}{5} = \frac{\square \times \square}{\square \times \square}$

$= \frac{\square}{10}$

$= \_\_\_\_\_$

10. $\frac{3}{4} = \frac{\square \times \square}{\square \times \square}$

$= \frac{\square}{100}$

$= \_\_\_\_\_$

11. $\frac{1}{2}$

12. $\frac{12}{50}$

13. $\frac{9}{20}$

14. $\frac{21}{25}$

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Write each division expression as a decimal.

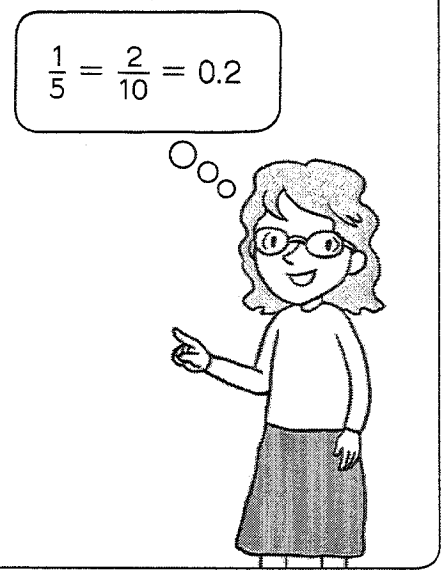
Example

$6 \div 5 = \frac{6}{5}$

$= \frac{5}{5} + \frac{1}{5}$

$= 1 + 0.2$

$= 1.2$



15. $5 \div 4 = \frac{\square}{4}$

$= \frac{\square}{4} + \frac{\square}{4}$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

16. $7 \div 2 = \frac{\square}{2}$

$= \frac{\square}{2} + \frac{\square}{2}$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

17. $13 \div 10$

18. $7 \div 5$

19. $10 \div 8$

20. $35 \div 25$

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Write each mixed number as a decimal.

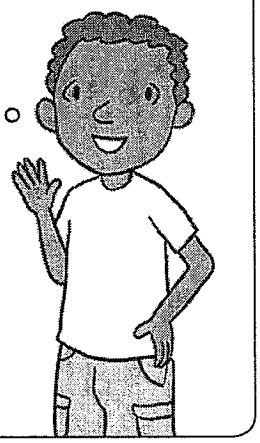
Example

$1\frac{4}{5} = 1 + \frac{\boxed{4}}{5}$

$= 1 + \underline{0.8}$

$= \underline{1.8}$

$\frac{4}{5} = \frac{\boxed{8}}{10} = \underline{0.8}$

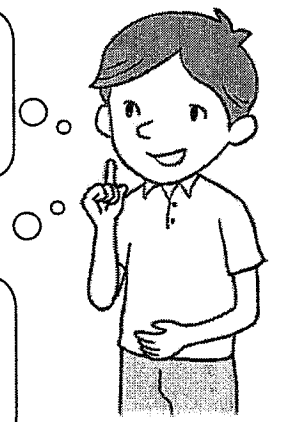


21. $3\frac{11}{25} = 3 + \frac{\square}{25}$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

$\frac{11}{25} = \frac{\square}{100} = \_\_\_\_$



22. $5\frac{17}{20} = \square + \square$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

$\frac{17}{20} = \frac{\square}{100} = \_\_\_\_$

23. $2\frac{3}{4}$

24. $5\frac{49}{50}$

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Worksheet 5 Adding Mixed Numbers

Add. Express each sum in simplest form.

1. $\frac{3}{4} + \frac{1}{2} = \frac{\square}{4} + \frac{\square}{4}$

$= \frac{\square}{4}$

$= \square$

2. $\frac{2}{3} + \frac{5}{6} = \frac{\square}{6} + \frac{\square}{6}$

$= \frac{\square}{6}$

$= \square\frac{\square}{6}$

$= \square$

3. $\frac{7}{8} + \frac{3}{4}$

4. $\frac{2}{3} + \frac{4}{9}$

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Add. Express each sum in simplest form.

Example

$\frac{2}{5} + 1\frac{7}{10} = \frac{4}{10} + \frac{7}{10} + 1$

$= 1\frac{11}{10}$

$= 2\frac{1}{10}$

$\frac{2}{5} = \frac{4}{10}$

$1\frac{7}{10} = \frac{7}{10} + 1$

$1\frac{11}{10} = 1 + \frac{11}{10}$

$= 1 + 1\frac{1}{10}$

$= 2\frac{1}{10}$

5. $1\frac{3}{8} + \frac{3}{4} =$ ☐ + ☐ + ☐

= ☐

= ☐

6. $\frac{5}{6} + 2\frac{5}{12}$

7. $3\frac{2}{3} + \frac{5}{9}$

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Add. Express each sum in simplest form.

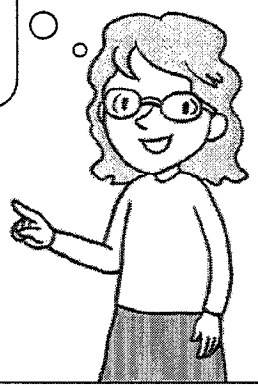
Example

$1\frac{1}{3} + 2\frac{1}{9} = 1\frac{3}{9} + 2\frac{1}{9}$

$= 3\frac{4}{9}$

Add the fractions.
$\frac{3}{9} + \frac{1}{9} = \frac{4}{9}$

Add the whole numbers.
$1 + 2 = 3$



8. $2\frac{1}{5} + 4\frac{1}{6} = 2\frac{\square}{30} + 4\frac{\square}{30}$

$= \square$

9. $3\frac{1}{7} + 5\frac{1}{3} = 3\frac{\square}{21} + 5\frac{\square}{21}$

$= \square$

10. $2\frac{2}{3} + 1\frac{3}{5}$

11. $1\frac{5}{7} + 3\frac{1}{2}$

12. $2\frac{3}{4} + 4\frac{3}{5}$

13. $3\frac{3}{7} + 2\frac{5}{6}$

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Use benchmarks to estimate each sum.

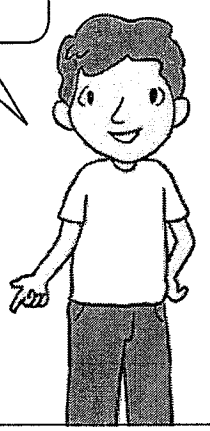
Example

$2\frac{4}{5} + 1\frac{4}{9}$

$\downarrow \qquad \downarrow$

$3 + 1\frac{1}{2} = 4\frac{1}{2}$

Compare the fractional part in each mixed number to the benchmarks 0, $\frac{1}{2}$, and 1.



14. $2\frac{3}{7} + 4\frac{7}{12}$

15. $5\frac{2}{11} + 3\frac{5}{8}$

16. $3\frac{5}{6} + 6\frac{8}{9}$

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Worksheet 6 Subtracting Mixed Numbers

Subtract. Express each difference in simplest form.

1. $\frac{3}{4} - \frac{3}{8} = \frac{\square}{8} - \frac{\square}{8}$

$= \frac{\square}{8}$

2. $\frac{2}{3} - \frac{4}{9} = \frac{\square}{9} - \frac{\square}{9}$

$= \frac{\square}{9}$

3. $\frac{5}{6} - \frac{5}{12}$

4. $\frac{7}{12} - \frac{1}{4}$

Subtract. Express each difference in simplest form.

Example

$1\frac{5}{6} - \frac{2}{3} = 1\frac{\boxed{5}}{6} - \frac{\boxed{4}}{6}$

$= \boxed{1\frac{1}{6}}$

5. $2\frac{7}{8} - \frac{1}{2} = 2\frac{\square}{8} - \frac{\square}{8}$

$= \square$

6. $4\frac{2}{3} - \frac{1}{9}$

7. $3\frac{3}{4} - \frac{5}{12}$

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Subtract. Express each difference in simplest form.

Example

$4\frac{3}{5} - 1\frac{1}{10} = 4\frac{6}{10} - 1\frac{1}{10}$

$= 3\frac{5}{10}$

$= 3\frac{1}{2}$

Subtract the fractions.
$\frac{6}{10} - \frac{1}{10} = \frac{5}{10}$

Subtract the whole numbers.
$4 - 1 = 3$

8. $3\frac{1}{2} - 1\frac{1}{3} = 3\frac{\square}{6} - 1\frac{\square}{6}$

$= \square$

9. $4\frac{1}{3} - 1\frac{1}{5}$

10. $5\frac{1}{5} - 2\frac{1}{7}$

11. $6\frac{1}{4} - 3\frac{1}{8}$

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Subtract. Express each difference in simplest form.

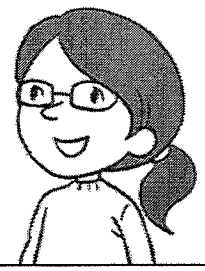
Example

$3\frac{1}{4} - 1\frac{1}{2} = 3\frac{1}{4} - 1\frac{2}{4}$

$= 2\frac{5}{4} - 1\frac{2}{4}$

$= 1\frac{3}{4}$

We cannot subtract $\frac{1}{2}$ from $\frac{1}{4}$.
So, we rename $3\frac{1}{4}$ as
$3\frac{1}{4} = 2 + \frac{4}{4} + \frac{1}{4} = 2\frac{5}{4}$.



12. $5\frac{1}{10} - 2\frac{1}{5}$

13. $4\frac{1}{3} - 1\frac{7}{9}$

14. $3\frac{2}{3} - 1\frac{3}{4}$

15. $4\frac{3}{4} - 2\frac{4}{5}$

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Use benchmarks to estimate each difference.

Example

$3\frac{3}{4} - 1\frac{3}{5}$

$\downarrow \quad \downarrow$

$4 - 1\frac{1}{2} = 2\frac{1}{2}$

$\frac{3}{4} \rightarrow 1$

$\frac{3}{5} \rightarrow \frac{1}{2}$

16. $5\frac{1}{8} - 2\frac{11}{12}$

17. $4\frac{3}{4} - 2\frac{6}{7}$

18. $7\frac{2}{9} - 1\frac{7}{8}$

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Worksheet 7 Real-World Problems: Fractions and Mixed Numbers

Solve. Show your work.

1. Lauren had 3 liters of water. She poured the water into 7 glasses equally. How much water was there in each glass?

2. Mr. Bennett bought a loaf of bread, which was cut into 20 equal slices. He gave the bread equally to 8 children. How many slices of bread did each child get?

3. Mrs. Williams had some watermelons. She gave $\frac{1}{4}$ of the watermelons to Mrs. Lopez and $\frac{7}{12}$ of the watermelons to Mrs. Brown. What fraction of the watermelons did Mrs. Williams give away?

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Solve. Show your work.

4. Ellen bought $\frac{5}{9}$ pound of flour. She used $\frac{1}{2}$ pound of flour to make pies. How much flour did Ellen have left?

5. Mr. Hayes sold $\frac{7}{9}$ of a crate of grapefruit. He sold $\frac{3}{5}$ of another crate of grapefruit. How many crates of grapefruit did Mr. Hayes sell in all?

6. Latoya had $2\frac{3}{4}$ liters of water in a watering can. She used $1\frac{2}{7}$ liters of the water to water her plants. How much water did Latoya have left in the watering can?

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Solve. Show your work.

7. Jose went jogging with Sam. Jose jogged $\frac{5}{8}$ mile before he stopped to rest. Sam jogged $\frac{1}{4}$ mile more than Jose before stopping. After resting, they continued jogging. Each of them jogged a total distance of $2\frac{1}{5}$ miles.

a. How far did Sam jog before stopping?

b. What was the distance Jose jogged after resting?

8. Sharon completed her English homework in $\frac{2}{3}$ hour. She completed her science homework in $\frac{5}{6}$ hour.

a. How much longer did Sharon take to complete her science homework?

b. How much time did she spend on her homework altogether?

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Solve. Show your work.

9. Jana spent $\frac{1}{6}$ of her leisure time playing games. She spent $\frac{1}{4}$ more of her time reading than playing games. Jana spent the rest of her leisure time exercising.

a. What fraction of Jana's leisure time was spent reading?

b. What fraction of her leisure time was spent exercising?

10. A shopkeeper had $3\frac{1}{2}$ kilograms of onions. He sold $1\frac{1}{4}$ kilograms of onions in the morning and $1\frac{3}{8}$ kilograms in the afternoon.

a. How many kilograms of onions did the shopkeeper sell altogether?

b. How many kilograms of onions did he have left?

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CHAPTER 4

Multiplying and Dividing Fractions and Mixed Numbers

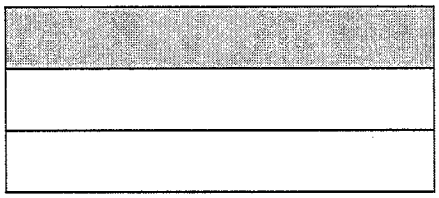
Worksheet 1 Multiplying Proper Fractions

Look at the models. Follow the steps and fill in the blanks.

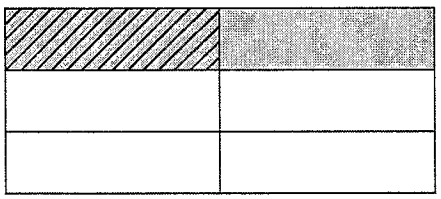
Example

What is the value of $\frac{1}{2}$ of $\frac{1}{3}$?

Step 1 A rectangle is divided into thirds. Shade $\frac{1}{3}$ of it.



Step 2 Draw stripes over $\frac{1}{2}$ of the shaded portion.



$\frac{1}{6}$ of the rectangle has stripes drawn over the shaded portion.

$\frac{1}{2}$ of $\frac{1}{3}$ is $\frac{1}{6}$.

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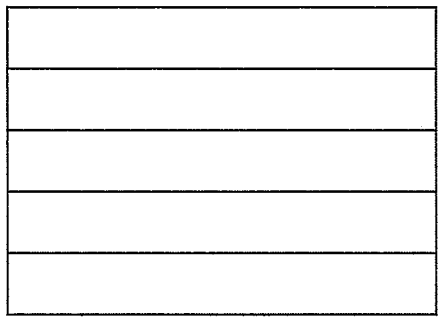
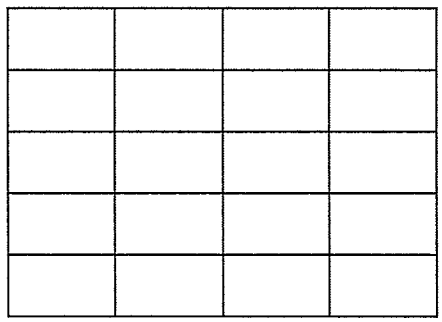
Look at the models. Follow the steps and fill in the blanks.

1. What is the value of $\frac{1}{4}$ of $\frac{2}{5}$?

Step 1 A rectangle is divided into fifths. Shade $\frac{2}{5}$ of it.



Step 2 Draw stripes over $\frac{1}{4}$ of the shaded portion.



[ ] of the rectangle has stripes drawn over the shaded portion.

$\frac{1}{4}$ of $\frac{2}{5}$ is [ ].

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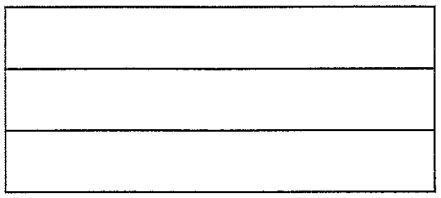
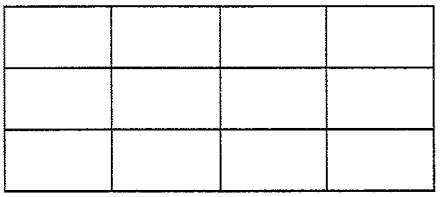
2. What is the value of $\frac{3}{4}$ of $\frac{2}{3}$?

Step 1 A rectangle is divided into thirds. Shade $\frac{2}{3}$ of it.



Step 2 Draw stripes over $\frac{3}{4}$ of the shaded portion.



[ ] of the rectangle has stripes drawn over the shaded portion.

$\frac{3}{4}$ of $\frac{2}{3}$ is [ ].

Complete.

Example

$\frac{1}{2}$ of $\frac{3}{4}$ = [$\frac{1}{2}$] × [$\frac{3}{4}$]

3. $\frac{1}{5}$ of $\frac{2}{3}$ = [ ] × [ ]

4. $\frac{1}{3}$ of $\frac{7}{8}$ = [ ] ◯ [ ]

5. $\frac{1}{4}$ of $\frac{5}{9}$ = [ ] ◯ [ ]

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Complete.

Example

$\frac{1}{3} \times \frac{5}{8} = \frac{1}{3}$ of $\frac{5}{8}$

6. $\frac{3}{4} \times \frac{7}{12} =$ ☐ of ☐

7. $\frac{1}{2} \times \frac{4}{9} = \frac{1}{2}$ ☐ $\frac{4}{9}$

8. $\frac{2}{5} \times \frac{1}{6} =$ ☐ of ☐

Multiply. Express each product in simplest form.

Example

$\frac{1}{2} \times \frac{1}{3} = \frac{1 \times 1}{2 \times 3}$ ← Multiply the numerators. Multiply the denominators.

$= \frac{1}{6}$

9. $\frac{3}{4} \times \frac{5}{7} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

10. $\frac{2}{5} \times \frac{2}{9} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

11. $\frac{5}{6} \times \frac{1}{3} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

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Multiply. Express each product in simplest form.

Example

$$\frac{1}{3} \times \frac{6}{7} = \frac{1 \times 2}{1 \times 7} = \frac{2}{7}$$

This is another way to multiply fractions. Divide a numerator and a denominator by the **common factor** 3.

$$\frac{1}{3} \times \frac{6}{7} = \frac{1}{3 \div 3} \times \frac{6 \div 3}{7} = \frac{1}{1} \times \frac{2}{7}$$

12. $\frac{1}{2} \times \frac{4}{5} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

13. $\frac{2}{5} \times \frac{3}{8} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

14. $\frac{3}{4} \times \frac{7}{12} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

15. $\frac{3}{4} \times \frac{8}{9} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

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Multiply. Express each product in simplest form.

16. $\frac{1}{6} \times \frac{8}{9}$

17. $\frac{1}{3} \times \frac{6}{7}$

18. $\frac{4}{9} \times \frac{7}{12}$

19. $\frac{3}{5} \times \frac{11}{12}$

20. $\frac{4}{7}$ of $\frac{5}{12}$

21. $\frac{3}{4}$ of $\frac{2}{3}$

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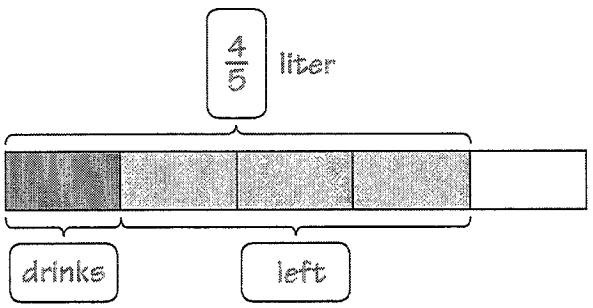
Worksheet 2 Real-World Problems: Multiplying with Proper Fractions

Complete each model to show the statements.

Example

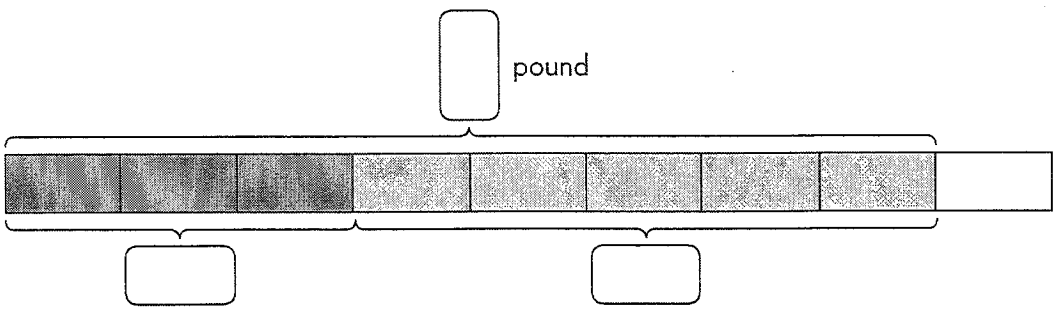
A bottle contains $\frac{4}{5}$ liter of juice.

Amy drinks $\frac{1}{4}$ of the juice.



1. Mrs. Costa bought $\frac{8}{9}$ pound of beef.

She cooked $\frac{3}{8}$ of the beef.



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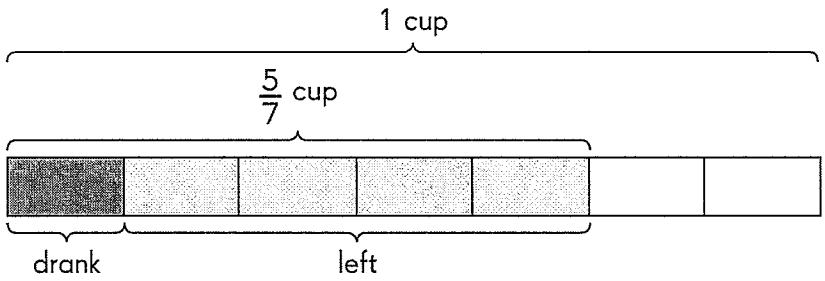
Draw a model to show the statements.

2. Harry had $\frac{7}{8}$ meter of ribbon.
He used $\frac{2}{7}$ of the ribbon to tie a gift.

Solve. Use a model to help you.

3. Sarah poured $\frac{5}{7}$ cup of milk into a glass. She drank $\frac{1}{5}$ of it.

a. How much milk did she drink?



From the model,

7 units ⟶ _____ cup

1 unit ⟶ _____ cup

She drank _____ cup of milk.

b. How much milk was left?

4 units ⟶ _____ cup

_____ cup of milk was left.

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Solve. Use a model to help you.

4. A farmer had $\frac{3}{4}$ of a bag of seeds. He planted $\frac{2}{3}$ of the seeds.

a. What fraction of the bag of seeds did the farmer plant?

Model:

From the model,

_____ units ⟶ _____

1 unit ⟶ _____

_____ units ⟶ _____

He planted _____ of a bag of seeds.

b. What fraction of the bag of seeds were left?

_____ unit ⟶ _____

_____ of a bag of seeds was left.

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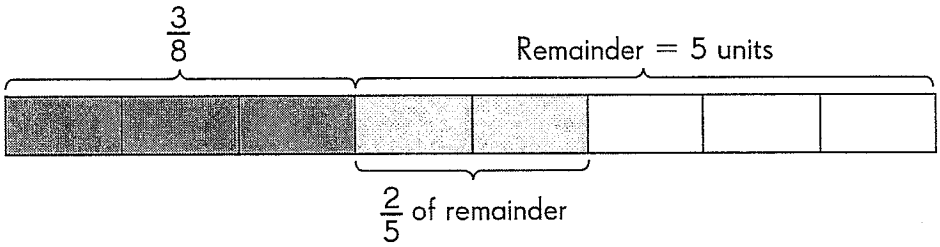
Complete each model to show the statements.

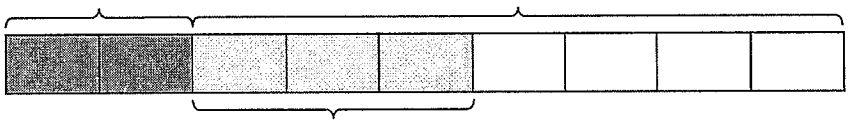
Example

Barry bought a box of fruits. Of the fruits, $\frac{3}{8}$ were apples.

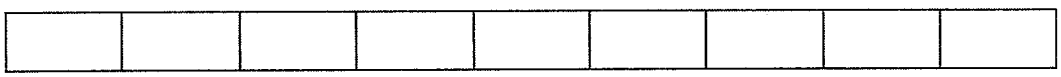
Of the remainder, $\frac{2}{5}$ were oranges.



5. Cindy collects Canadian, U.S., and British coins. Of the coins, $\frac{2}{9}$ are Canadian. Of the remainder, $\frac{3}{7}$ are British coins.



6. Jessica had some money. She spent $\frac{4}{9}$ of her money on food and $\frac{3}{10}$ of the remainder on drinks.



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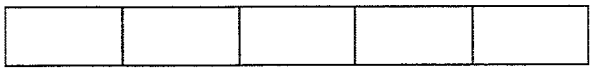
Solve. Use models to help you.

7. Mike has an aquarium. Of the fish in his aquarium, $\frac{2}{5}$ are clownfish. Of the remaining fish, $\frac{1}{3}$ are damselfish.

a. What fraction of Mike's fish are damselfish?



b. What fraction of his fish are not clownfish or damselfish?

8. Lillian collects stickers. Of her collection, $\frac{5}{12}$ are animal stickers. Of the remainder, $\frac{5}{14}$ are flower stickers.

a. What fraction of Lillian's stickers are flower stickers?

b. What fraction of her stickers are not animal or flower stickers?

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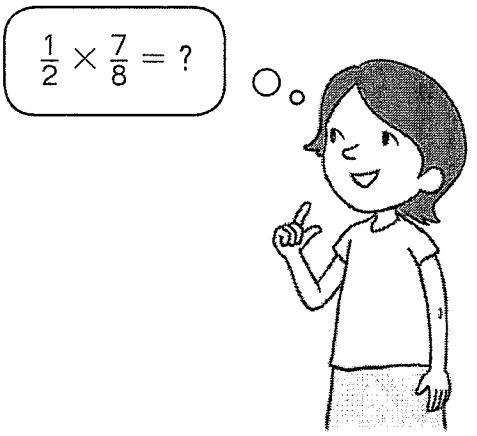
Solve. Use the fraction method.

9. Zach walked his dog for $\frac{7}{8}$ hour. They spent $\frac{1}{2}$ of the time at the beach. How much time did Zach and his dog spend at the beach?



10. Mrs. Jenkins picked some tomatoes from her garden. She used $\frac{5}{9}$ of the tomatoes to make pasta sauce. Then she used $\frac{3}{4}$ of the remainder to make a salad. What fraction of the tomatoes did Mrs. Jenkins use to make the salad?

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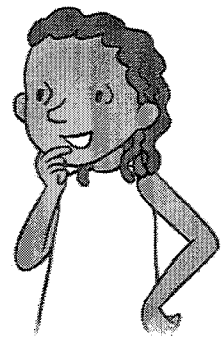
Worksheet 3 Multiplying Improper Fractions by Fractions

Simplify each improper fraction.

1. $\frac{18}{8} = \frac{\square}{\square}$

$18 \div 2 =$ 9

$8 \div 2 =$ 4



2. $\frac{27}{6} = \frac{\square}{\square}$

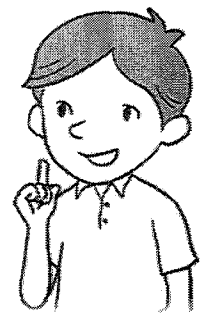
$27 \div$ _____ $=$ _____

$6 \div$ _____ $=$ _____

3. $\frac{42}{24} = \frac{\square}{\square}$

$42 \div$ _____ $=$ _____

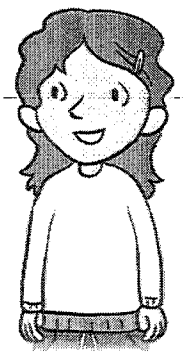
$24 \div$ _____ $=$ _____



4. $\frac{56}{32} = \frac{\square}{\square}$

$56 \div$ _____ $=$ _____

$32 \div$ _____ $=$ _____



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Complete.

Example

$$\frac{2}{3} \times \frac{18}{5} = \frac{2 \times 6}{1 \times 5} = \frac{12}{5} = 2\frac{2}{5}$$

Divide a numerator and a denominator by the common factor 3.

$$\frac{2}{3} \times \frac{18}{5} = \frac{2}{3 \div 3} \times \frac{18 \div 3}{5} = \frac{2 \times 6}{1 \times 5}$$

5. $\frac{1}{2} \times \frac{8}{7} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

6. $\frac{5}{4} \times \frac{3}{20} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

7. $\frac{5}{4} \times \frac{16}{3}$

8. $\frac{5}{4} \times \frac{12}{13}$

9. $\frac{7}{8} \times \frac{12}{7}$

10. $\frac{14}{9} \times \frac{18}{7}$

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Worksheet 4 Multiplying Mixed Numbers and Whole Numbers

Write each mixed number as an improper fraction.

1. $3\frac{2}{5} = \frac{\square}{\square}$

2. $2\frac{7}{9} = \frac{\square}{\square}$

Write the product as an improper fraction.

3. $\frac{6}{5} \times 2 = \frac{\square}{\square}$

4. $\frac{9}{4} \times 5 = \frac{\square}{\square}$

Write each improper fraction as a mixed number.

5. $\frac{12}{5} = \frac{10}{5} + \frac{2}{5}$

$= \square + \square$

$= \square$

6. $\frac{15}{8} = \square + \square$

$= \square + \square$

$= \square$

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Divide. Find the quotient and remainder. Then write the answer as a mixed number.

7. $2\overline{)9}$ → 4, remainder 1

Quotient = 4 Remainder = 1

$\frac{9}{2} = 4\frac{\square}{2}$

8. $3\overline{)10}$

Quotient = _____ Remainder = _____

$\frac{10}{3} = \square\frac{\square}{\square}$

9. $4\overline{)13}$

Quotient = _____ Remainder = _____

$\frac{13}{4} = \square\frac{\square}{\square}$

10. $5\overline{)28}$

Quotient = _____ Remainder = _____

$\frac{28}{5} = \square\frac{\square}{\square}$

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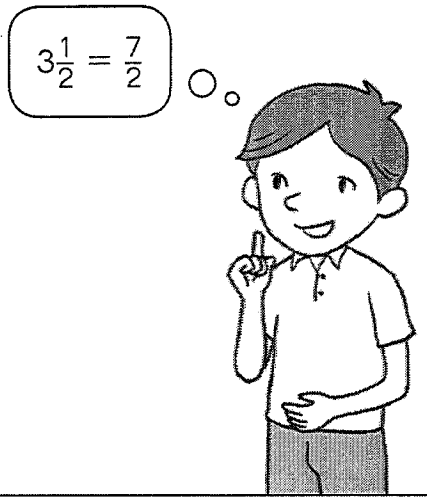
Complete.

Example

$3\frac{1}{2} \times 5 = \frac{7}{2} \times 5$

$= \frac{35}{2}$

$= 17\frac{1}{2}$



11. $4\frac{2}{5} \times 3 = \frac{\square}{\square} \times 3$

$= \frac{\square}{\square}$

$= \square\frac{\square}{\square}$

12. $5\frac{1}{3} \times 4 = \frac{\square}{\square} \times 4$

$= \frac{\square}{\square}$

$= \square\frac{\square}{\square}$

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Multiply. Express the product as a whole number or a mixed number in simplest form.

13. $2\frac{8}{13} \times 2$

14. $8 \times 2\frac{4}{7}$

15. $9 \times 4\frac{3}{4}$

16. $7\frac{2}{5} \times 10$

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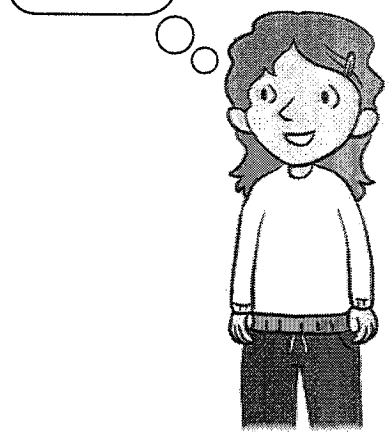
Worksheet 5 Real-World Problems: Multiplying with Mixed Numbers

Solve. Show your work.

1. Juan has 8 rabbits. He wants to give $1\frac{1}{4}$ carrots to each rabbit.

How many carrots does Juan need?

$1\frac{1}{4} = \frac{5}{4}$



_____ × _____ = _____

Juan needs _____ carrots.

2. Mr. Foster buys 7 boxes of cornflakes. Each box weighs $13\frac{1}{2}$ ounces.

Find the total weight of the cornflakes.

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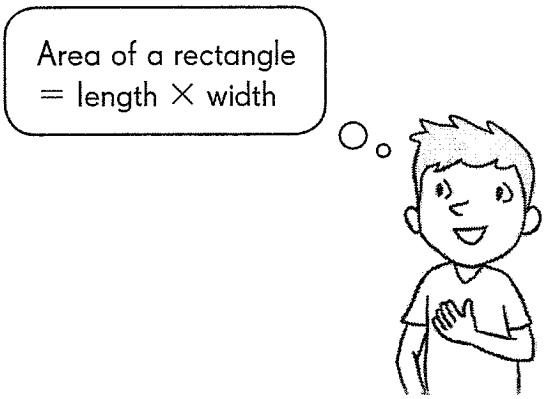
Solve. Show your work.

3. A rectangular envelope is 8 inches wide and $4\frac{1}{3}$ inches long. Find the area of the envelope.



4. A carpenter bought 4 boxes of nails. Each box weighed $3\frac{2}{5}$ pounds. The price of the nails was $8 per pound. How much did the carpenter pay for the nails?

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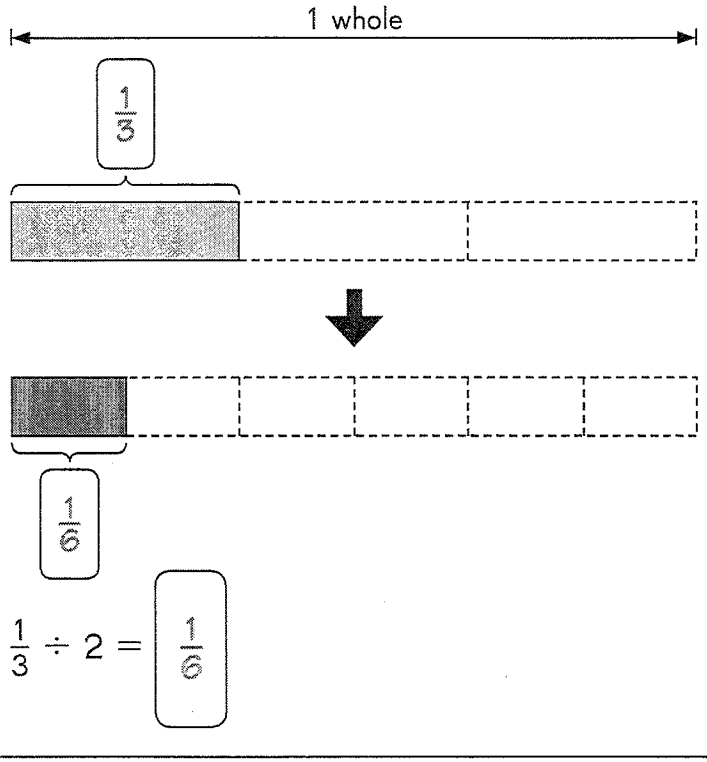
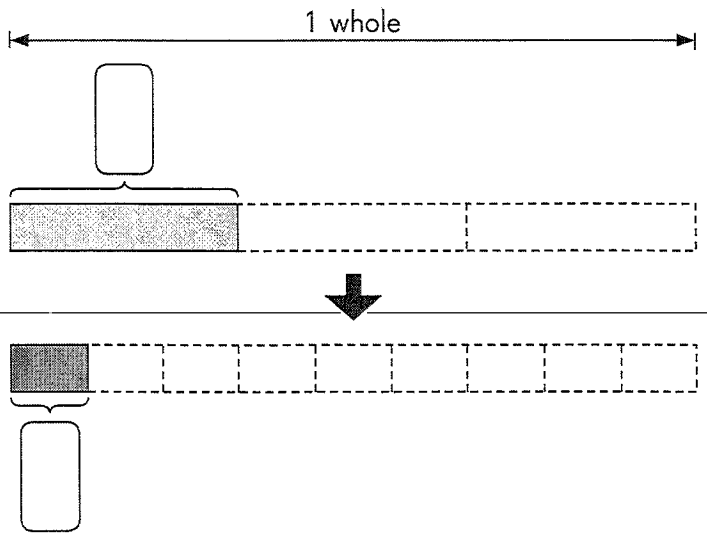
Worksheet 6 Dividing a Fraction by a Whole Number

Each whole is divided into parts. Each part is subdivided into smaller parts. Complete each model. Then complete the division sentence.

Example



1.



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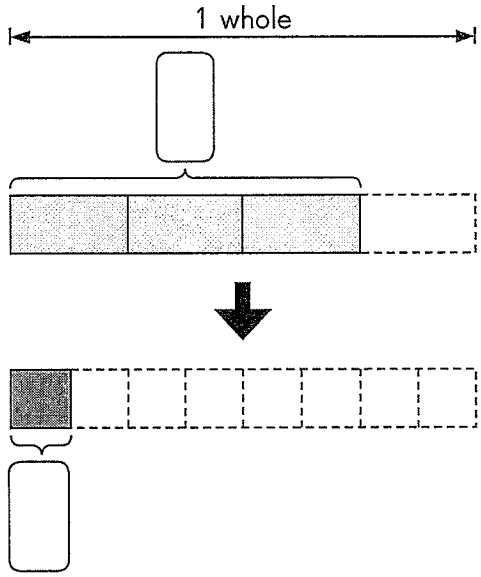
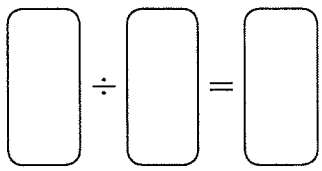
Each whole is divided into parts. Each part is subdivided into smaller parts. Complete each model. Then complete the division sentence.

2.





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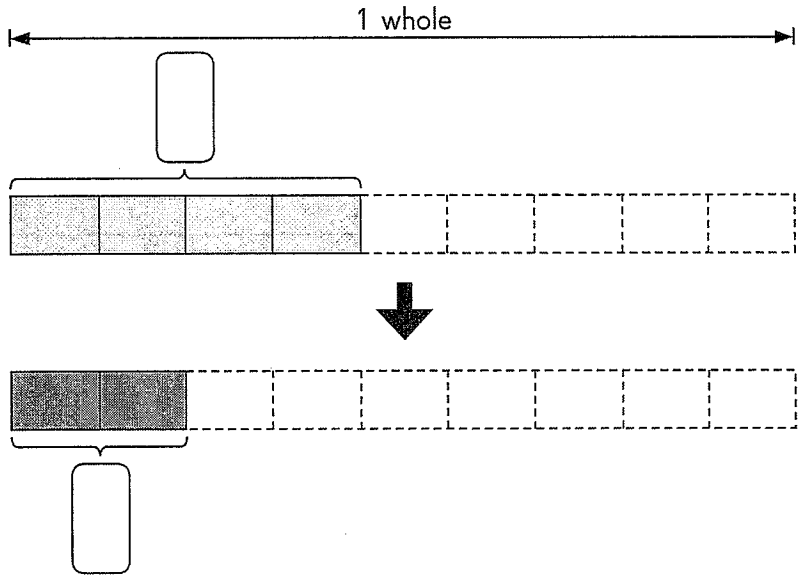

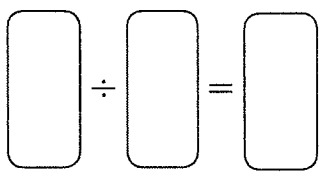

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Complete.

Example

$\frac{1}{4} \div 3 = \boxed{\frac{1}{3}}$ of $\frac{1}{4}$

$= \boxed{\frac{1}{3}} \times \frac{1}{4} = \boxed{\frac{1}{12}}$

$\frac{1}{3} \times \frac{1}{4} = \frac{1 \times 1}{3 \times 4}$

$= \frac{1}{12}$

4. $\frac{7}{8} \div 5 = \square$ of $\frac{7}{8}$

$= \square \times \frac{7}{8}$

$= \square$

5. $\frac{8}{9} \div 4 = \square$ of $\square$

$= \square \times \square$

$= \square$

6. $\frac{5}{12} \div 8 = \square$ of $\square$

$= \square \times \square$

$= \square$

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Divide. Express each quotient in simplest form.

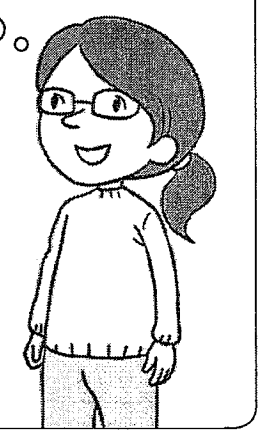
Example

$\frac{2}{5} \div 3 = \frac{2}{5} \times \frac{1}{3}$

$= \frac{2 \times 1}{5 \times 3}$

$= \frac{2}{15}$

Dividing by 3 is the same as multiplying by $\frac{1}{3}$.



7. $\frac{2}{3} \div 6$

8. $\frac{7}{8} \div 9$

9. $\frac{4}{9} \div 8$

10. $\frac{9}{11} \div 3$

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Worksheet 7 Real-World Problems: Multiplying and Dividing with Fractions

Solve. Use models to help you.

1. There are 144 fruits in a box. Of the fruits in the box, $\frac{1}{8}$ are red apples and $\frac{1}{4}$ are green apples. The rest are oranges.

a. How many oranges are there altogether?

b. What fraction of the fruits are oranges?

2. A bakery had 54 buns. Of the buns that the bakery had, $\frac{1}{6}$ were sold in the morning and $\frac{1}{2}$ were sold in the evening.

a. How many buns were sold altogether?

b. How many buns were not sold?

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Solve. Use models to help you.

3. Mr. Woods had \$840. He spent $\frac{3}{7}$ of the money on a lawn mower. He spent $\frac{1}{8}$ of the remaining money on a gift for his wife. How much money did Mr. Woods have left?

4. Rebecca had a piece of ribbon. She used $\frac{3}{8}$ of it to tie a parcel. She used $\frac{1}{5}$ of the remainder for a bookmark. Rebecca had 24 centimeters of ribbon left. What was the length of ribbon Rebecca had at first?

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Algebra

Worksheet 1 Using Letters as Numbers

Complete.

1. Add 3 to 5. _____

2. Subtract 6 from 10. _____

3. 12 more than 3 is _____.

4. 4 less than 9 is _____.

Write an algebraic expression for each of the following.

Example

Subtract 3 from k.

$k - 3$

An **algebraic expression** contains numbers, **variables**, and operation symbols. In this expression, k is the variable.

5. Add 2 to x.

_____

6. Subtract y from 7.

_____

7. 12 more than t.

_____

8. 9 less than s.

_____

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Complete the tables.

9.

Child	Present age	5 years ago	3 years from now	10 years from now
Tim	8			
Ken	x	$x - 5$		
Sid	y			

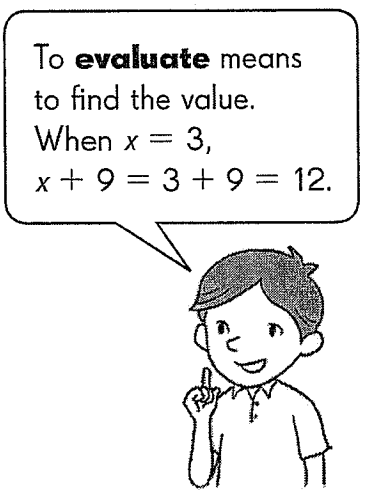
10.

Child	Present age	x years ago	t years from now	y years from now
Tara	8			
May	13			

Evaluate each expression for the given values of x.

11.

Expression	Value of the expression	
	$x = 3$	$x = 15$
$x + 9$	12	
$7 + x$		
$x - 2$		



Complete.

12. $3 + 3 + 3 + 3 =$ _____ groups of 3

13. $5 + 5 + 5 = 3$ groups of _____

14. $4 + 4$ is the same as $2 \times$ _____.

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Write an algebraic expression for each of the following.

Example

Multiply p by 6. $6p$

Divide p by 6. $\frac{p}{6}$

15. Multiply 3 by h. _____

16. Divide 5 by t. _____

17. Half of f. _____

18. Twice the value of b. _____

Complete the tables.

19. There are m socks in each bag.

Number of Bags	Total Number of Socks
1	m
4	
7	

20. A box contains g crayons. The crayons are shared equally among some children.

Number of Children	Number of Crayons Each Child Gets
3	$\frac{g}{3}$
6	
10	

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Circle the correct expression in each set for $n = 24$.

21. $4 + n = 4 + 24$ $4 + n = 4n$ $4 + n = 424$

22. $32 - n = 32n$ $32 - n = 32 - 24$ $32 - n = \frac{32}{n}$

23. $5n = 5 \times 24$ $5n = 524$ $5n = 5 + 24$

24. $\frac{2}{n} = 2 \div 24$ $2 \times n = \frac{2}{n}$ $2 \div n = \frac{n}{2}$

Complete the table.

25.

Child	Present age	4 years ago	3 years from now	10 years from now
Faye	$5t$	$5t - 4$		
Elijah	$10u$			

Evaluate each expression for the given values of x.

26.

Expression	Value of the expression	
	$x = 3$	$x = 15$
$4x$		
$\frac{x}{3}$		
$3x - 5$		
$\frac{5x}{6}$		
$\frac{20 - x}{2}$		

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Worksheet 2 Simplifying Algebraic Expressions

Complete.

1. $3 + 3 = 2 \times$ _____

2. $4 + 4 + 4 + 4 + 4 + 4 =$ _____ $\times 4$

3. $4 \times 5 =$ _____ $\times 4$

4. _____ $\times 8 = 8 \times 3$

Simplify each expression.

Example

$x + x + x =$ 3 x

5. $y + y + y + y + y = 5$ _____

6. $s + s + s + s + s + s = 6$ _____

7. $t + t + t + t + t + t + t =$ _____ t

Complete.

8. $3p =$ _____ + _____ + _____

9. $8w =$ _____ + _____ + _____ + _____ + _____ + _____ + _____ + _____

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Write an expression to represent each model.

Example

a	a	a	a	a

$4a + a$

$4a$ and a are **like terms** because they are multiples of a.

10.

b	b	b	b	b	b	b

_____

11.

w	w	w	w	w	w	w	w	w

_____

12.

y	y	y	y	y	y	y	y	y	y

_____

13.

z	z	z	z	z	z	z	z

_____

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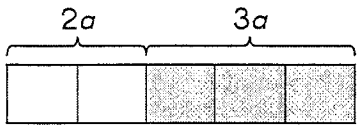
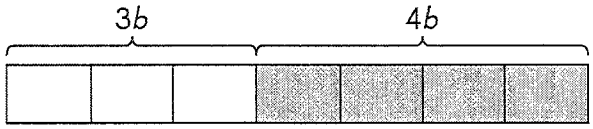
Look at each model. Then fill in the blanks.

Example



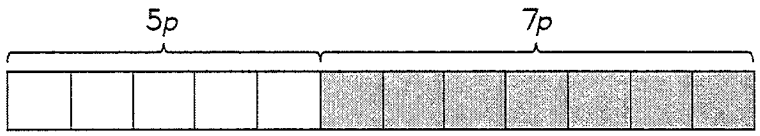
$2a + 3a =$ 5 a 5 $a - 3a = 2a$

14.



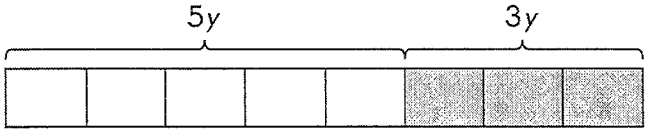
$4b + 3b =$ _____ b _____ $b -$ _____ $b = 3b$

15.



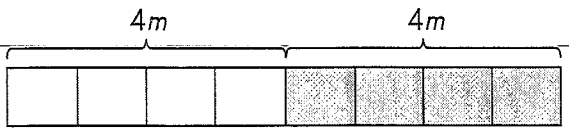
_____ $p +$ _____ $p =$ _____ p _____ $p -$ _____ $p = 7p$

16.



_____ $y +$ _____ $y =$ _____ y _____ $y -$ _____ $y = 5y$

17.



_____ $m +$ _____ $m =$ _____ m _____ $m -$ _____ $m = 4m$

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Simplify each expression.

18. $3x + 4x =$ _____

19. $6y + 3y =$ _____

20. $7c - 2c =$ _____

21. $14d - 5d =$ _____

22. $12f + 8f =$ _____

23. $29g - 29g =$ _____

Simplify each expression.

Example

$8d - 2d + 4d = 6d + 4d$

$= 10d$

24. $9x - 3x - 2x$

25. $10b - 4b - 3b$

26. $6c + 7c + 3c$

27. $8d + 2d + 9d$

28. $15f + 8f - 4f$

29. $24g - 9g + 5g$

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Simplify each expression.

Example

$9d + 8 + 2d - 4$
$= 11d + 4$

Collect like terms.
$9d + 2d = 11d$
$8 - 4 = 4$

30. $w + 5 + 2w$

31. $12p + 7p + 10 - 1$

32. $8 + d + 4d + 6$

33. $10k + 7 - 5k - 3$

34. $14 + 9f - 5 - 4f$

35. $10g + 10 - g + 2$

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Write an algebraic expression for each situation.

36. Alison walked $7x$ kilometers from her house to the library. She then walked $4x$ kilometers from the library to her school. What was the total distance Alison walked?

37. Mrs. Wilson bought $3h$ red party hats, 4 blue party hats, and $5h$ yellow party hats. How many party hats did Mrs. Wilson buy in all?

38. Each tray contains 12 eggs. Mr. Harris has $6x$ eggs and a full tray of eggs. Mrs. King has $2x$ fewer eggs than Mr. Harris. How many eggs does Mrs. King have?

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Worksheet 3 Inequalities and Equations

Write *true* or *false* next to each statement.

1. $>$ means less than. _____

2. $<$ means greater than. _____

3. $5 > 2$ _____

4. $14 < 4$ _____

Write five possible values for each variable.

5. $x > 2$

x can be _____.

6. $y < 10$

y can be _____.

Write five impossible values of each variable.

7. $u < 15$

u cannot be _____.

8. $v > 36$

v cannot be _____.

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Compare. Write =, <, or >.

Example

For $a = 5$, $7a$ (>) 25

$7a = 7 \times 5 = 35$
$35 > 25$

$7a$ is not equal to 25.
$7a > 25$ is an **inequality**.

9. For $y = 8$, $9y$ ( ) 90

10. For $z = 9$, $6z$ ( ) 45

11. For $p = 7$, 28 ( ) $4p$

12. For $q = 4$, 36 ( ) $7q$

13. For $r = 6$, 55 ( ) $9r$

14. For $n = 5$, 35 ( ) $7n$

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Evaluate each expression for the given value of the variable.

15. For $x = 8$, $6x - 3 =$ _____.

16. For $y = 12$, $7y + 14 =$ _____.

Complete with =, <, or >, for $a = 8$.

17. $3a - 2$ ◯ 22

18. $5a + 4$ ◯ 45

19. $6a + 8$ ◯ 65

20. $9a - 12$ ◯ 58

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Solve each equation.

Example

$4r + 8 = 24$

$4r + 8 - 8 = 24 - 8$

$4r = 16$

$4r \div 4 = 16 \div 4$

$r = 4$

$4r + 8 = 24$ is an **equation**.
$4r + 8$ has a value of 24.
To **solve** an equation means to find the value of the variable.

21. $7x = 28$

22. $8x = 72$

23. $6x + 12 = 60$

24. $7x - 5 = 58$

25. $8x + 24 = 48$

26. $9x - 5 = 76$

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Worksheet 4 Real-World Problems: Algebra

Solve. Show your work.

1. A bag contains y fruits. A box can hold 4 times as many fruits as the bag.

a. How many fruits can the box hold?

b. If $y = 8$, how many fruits can the box hold?

2. Ryan is 127 centimeters tall. Serena is p centimeters taller than Ryan.

a. Find the height of Serena in terms of p.

b. What is their combined height in terms of p?

c. If $p = 9$, find their combined height.

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Solve. Show your work.

3. Beth had k dollars. She spent 8 dollars on a bag and the rest of the money on 4 notepads.

a. Find the cost of each notepad in terms of k.

b. If Beth had \$16 at first, find the cost of each notepad.

4. Bruce has $(2m + 7)$ stamps and Gregory has $(7m - 35)$ stamps. If $m = 8$,

a. how many stamps does each boy have?

b. who has more stamps?

c. how many more stamps must one of the boys buy so that both boys have the same number of stamps?

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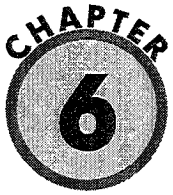
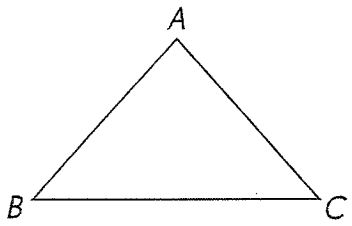


Area of a Triangle

Worksheet 1 Base and Height of a Triangle

Name the sides of the triangle.

1.

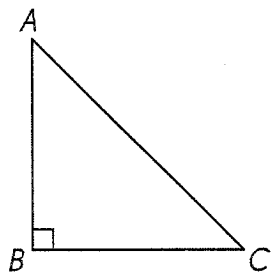


Sides: _____

_____

_____

2.

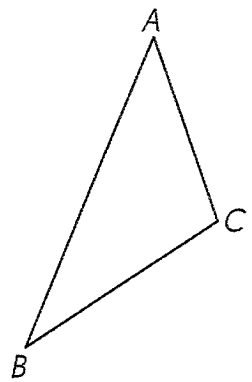


Sides: _____

_____

_____

3.



Sides: _____

_____

_____

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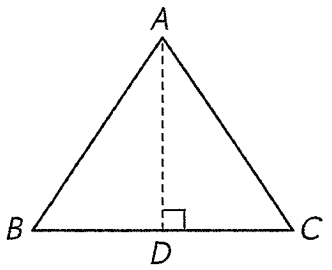
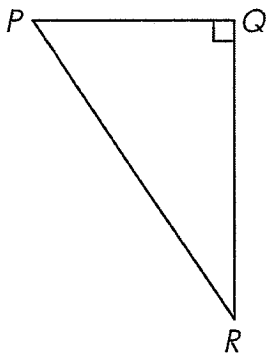
Name the height for the given base of each triangle.

Example



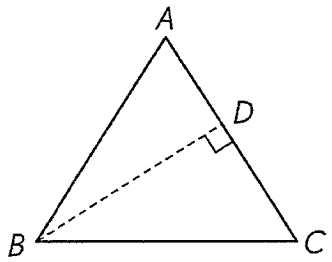
In triangle ABC, if the base is $\overline{BC}$, the height is $\overline{AD}$.

4.



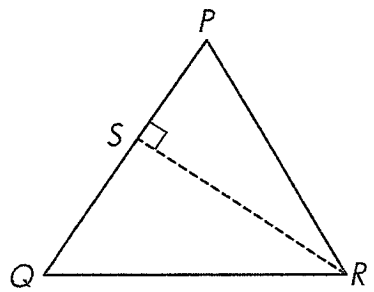
In triangle PQR, if the base is $\overline{PQ}$, the height is _____.

5.



In triangle ABC, if the base is $\overline{AC}$, the height is _____.

6.



In triangle PQR, if the base is $\overline{PQ}$, the height is _____.

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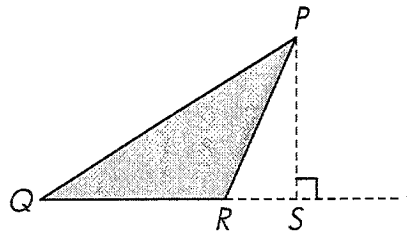
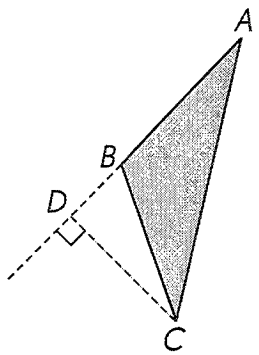
Name the height for the given base of each triangle.

Example



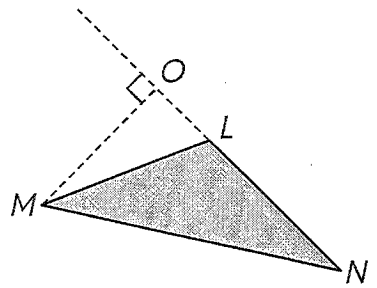
In triangle PQR, if the base is $\overline{QR}$, the height is $\overline{PS}$.

7.



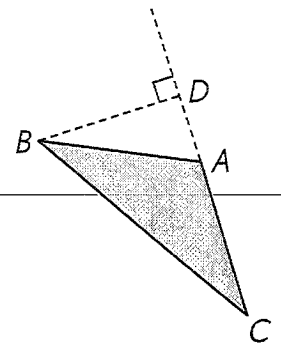
In triangle ABC, if the base is $\overline{AB}$, the height is _____.

8.



In triangle LMN, if the base is $\overline{LN}$, the height is _____.

9.



In triangle ABC, if the base is $\overline{AC}$, the height is _____.

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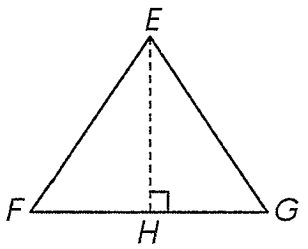
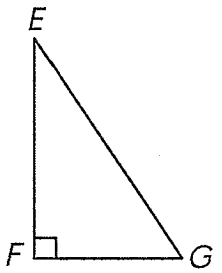
Name the base for the given height of each triangle.

Example



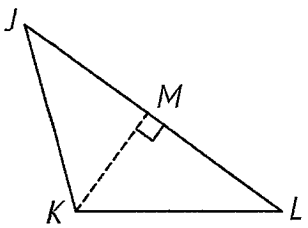
In triangle *EFG*, if the height is *EH*, the base is $\overline{FG}$.

10.



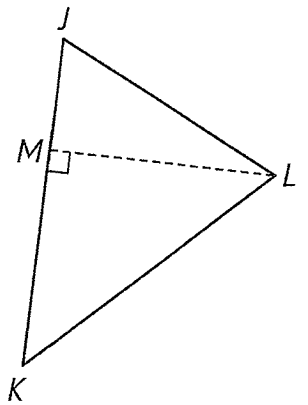
In triangle *EFG*, if the height is $\overline{EF}$, the base is _____.

11.



In triangle *JKL*, if the height is $\overline{KM}$, the base is _____.

12.



In triangle *JKL*, if the height is $\overline{LM}$, the base is _____.

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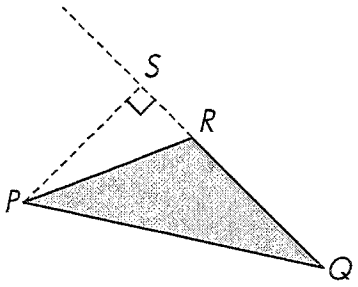
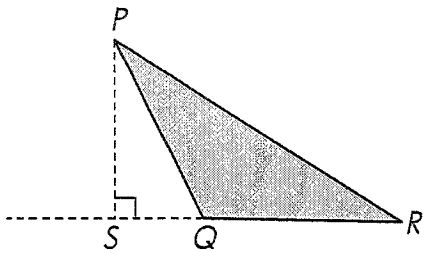
Name the base for the given height of each triangle.

Example



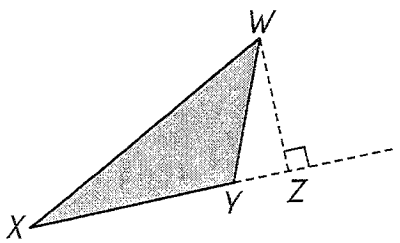
In triangle PQR, if the height is $\overline{PS}$, the base is $\overline{QR}$.

13.



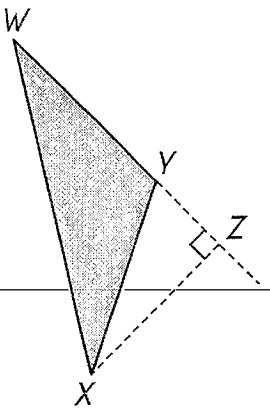
In triangle PQR, if the height is $\overline{PS}$, the base is _____.

14.



In triangle WXY, if the height is $\overline{WZ}$, the base is _____.

15.



In triangle WXY, if the height is $\overline{XZ}$, the base is _____.

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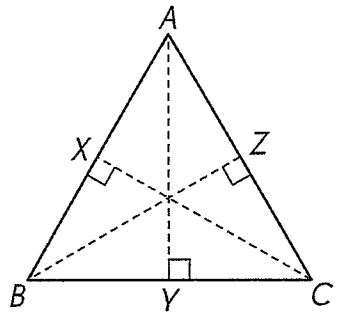
Complete.

16. In triangle ABC,



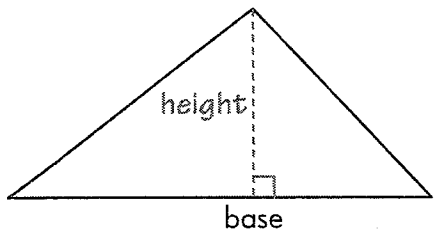
a. If the height is $\overline{AY}$, the base is _____.

b. If the height is $\overline{BZ}$, the base is _____.

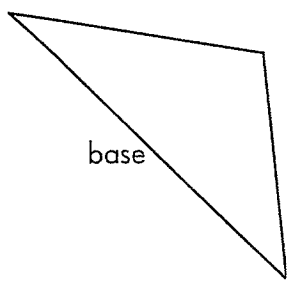
c. If the height is $\overline{CX}$, the base is _____.

For each triangle, the base is given. Use a drawing triangle to draw and label the height.

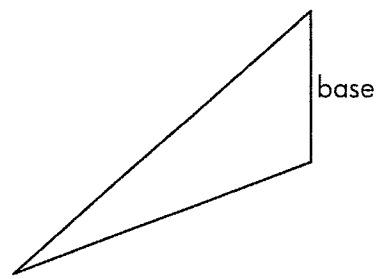
Example



17.



18.



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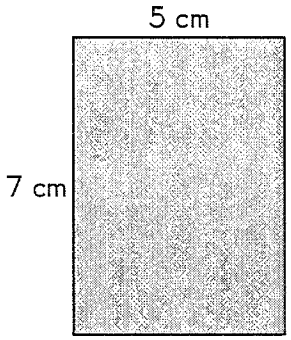
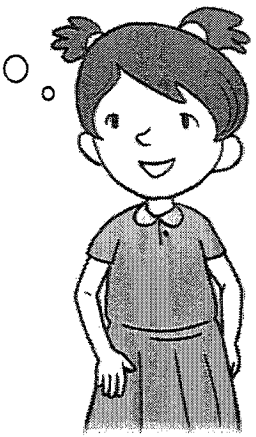
Worksheet 2 Finding the Area of a Triangle

Find the area of each rectangle.

1.



Area of a rectangle = length × width



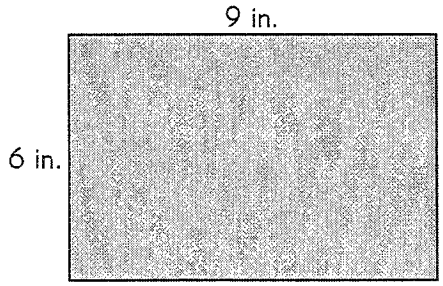
Length = _____ cm

Width = _____ cm

Area = _____ × _____

= _____ cm^2

2.



Length = _____ in.

Width = _____ in.

Area = _____ × _____

= _____ $in.^2$

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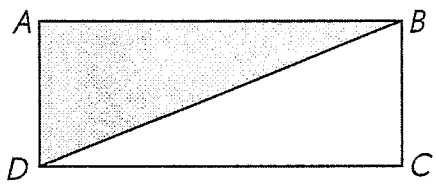
The area of triangle *ABD* is given. Find the area of rectangle *ABCD*.



The area of rectangle *ABCD* is double the area of triangle *ABD*.

Example

Area of the triangle = 8 cm^2

Area of the rectangle = 2 × 8

= 16 cm^2

3. Area of the triangle = 28 m^2

Area of the rectangle = _____ × _____

= _____ m^2

4. Area of the triangle = 12 ft^2

Area of the rectangle = _____ × _____

= _____ ft^2

5. Area of the triangle = 16 $in.^2$

Area of the rectangle = _____ × _____

= _____ $in.^2$

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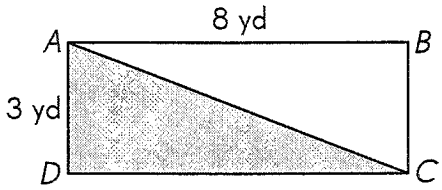
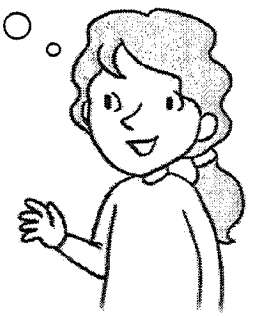
Name: _____ Date: _____

Find the area of each shaded triangle.

6.



The area of the shaded triangle is half the area of the rectangle.



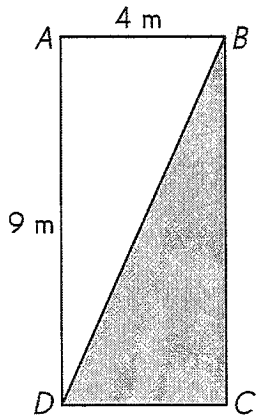
Area of rectangle $ABCD$ = _____ × _____

= _____ yd^2

Area of triangle ACD = $\frac{1}{2}$ × _____

= _____ yd^2

7.



Area of rectangle $ABCD$ = _____ × _____

= _____ m^2

Area of triangle BCD = $\frac{1}{2}$ × _____

= _____ m^2

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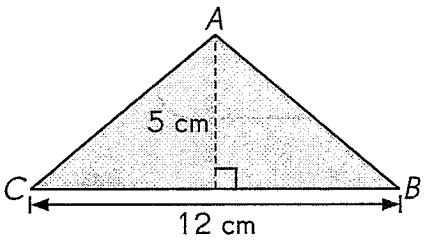
Name: _____ **Date:** _____

Find the area of each shaded triangle.

Example



Area of a triangle $= \frac{1}{2} \times$ base $\times$ height

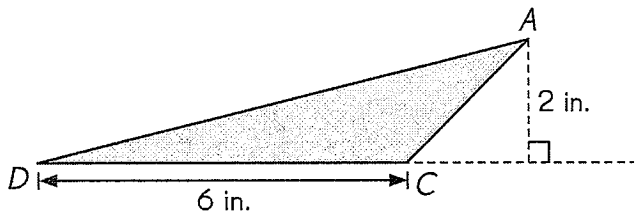
Base = 12 cm

Height = 5 cm

Area of triangle $ABC = \frac{1}{2} \times 12 \times 5$

$= 30$ cm^2

8.



Base = _____ in.

Height = _____ in.

Area of triangle $ACD = \frac{1}{2} \times$ _____ $\times$ _____

$=$ _____ in.^{2}

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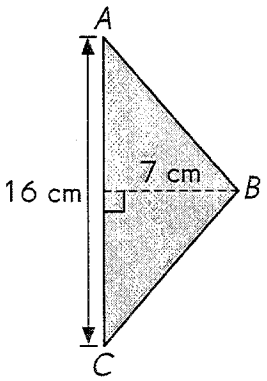
Name: _____ Date: _____

Find the area of the shaded triangle.

9.



Base = _____ cm

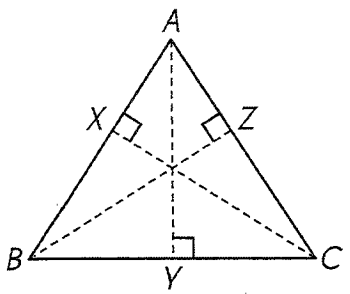
Height = _____ cm

Area of triangle $ABC = \frac{1}{2} \times$ _____ $\times$ _____

= _____ cm^2

Solve. Show your work.

10. In the figure, $AB = 14$ inches, $AC = 16$ inches, $AY = 9$ inches, and $BZ = 10$ inches.
Find the area of triangle ABC.



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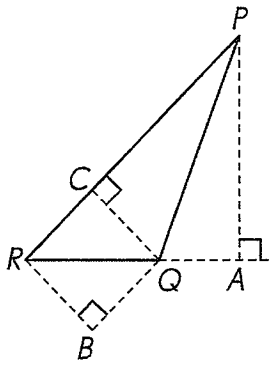
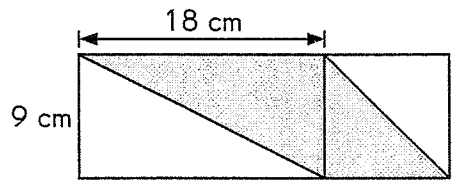
Name: _____ Date: _____

Solve. Show your work.

11. In the figure, $PR = 24$ meters, $RQ = 16$ meters, and $RB = 12$ meters. Find the area of triangle PQR.



12. The figure is formed by a rectangle and a square. Find the area of the shaded part of the figure.



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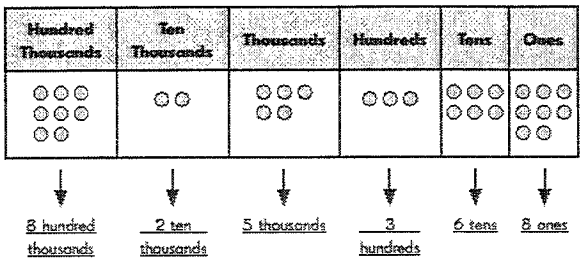
Answers

Chapter 1

Worksheet 1

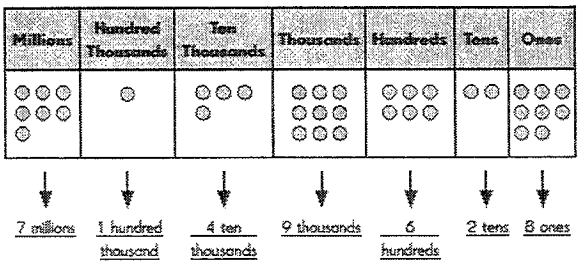
1.



2. 32,491
3. 813,000
4. 360,348
5. 604,909
6. Seventy-six thousand, eight hundred thirty
7. Four hundred thirty-eight thousand, five hundred eighty-six
8. Eight hundred ninety thousand, seven hundred four

Worksheet 2

1.



2. 4,221,914
3. 2,708,045
4. 7,058,409
5. Eighty-four thousand, four hundred ninety-five
6. Four million, six hundred twenty-eight thousand, three hundred fifteen
7. Nine million, thirty-two thousand, one hundred sixty
8. Six million, twenty thousand, seventy-eight
9. Five million, sixteen thousand, eight hundred four

Worksheet 3

1. 10
2. 4,000
3. 200,000
4. 3,000,000
5. 50,000
6. 5,000,000
7. thousands
8. hundred thousands
9. millions
10. 5
11. 6
12. 8
13. 9
14. 45,108
15. 63,005
16. 536,802
17. 9,741,380
18. 1,508,805
19. 8,940,049
20. 23,748 = 20,000 + 3,000 + 700 + 40 + 8
21. 81,059 = 80,000 + 1,000 + 50 + 9
22. 725,491 = 700,000 + 20,000 + 5,000 + 400 + 90 + 1
23. 5,061,734 = 5,000,000 + 60,000 + 1,000 + 700 + 30 + 4
24. 8,204,573 = 8,000,000 + 200,000 + 4,000 + 500 + 70 + 3
25. 2,680,307 = 2,000,000 + 600,000 + 80,000 + 300 + 7

Worksheet 4

1. less than
2. less than
3.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
5	1	2	6	4	3	2
5	1	0	2	2	0	4

greater than; >

4. 6,572,936
5. 3,400,369
6. 5,248,998
7. 6,041,852
8. 739,246
9. 1,841,007
10. 1,250,409
11. 6,548,692
12. 788,999, 2,360,518, 2,409,518
13. 6,787,157, 7,569,483, 8,000,002
14. 750,000; 650,000
15. 6,500,000; 5,500,000
16. 5,500,000
17. 4,500,000
18. 9,500,000
19. 6,500,000
20. 2,700,000
21. 7,200,000
22. 8,900,000
23. 5,200,000
24. 3,900,000
25. 7,900,000
26. 500,000
27. 150,000
28. 600,000
29. 600,000

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30. 180,000; 190,000
Add 10,000 to find the next number in the pattern.
31. 6,150,000; 5,650,000
Subtract 500,000 to find the next number in the pattern.
32. 4,500,000; 5,600,000
Add 1,100,000 to find the next number in the pattern.
33. 72,000; 82,000
34. 50,400; 50,300
35. 505,000; 485,000
36. 3,409,707; 3,309,707
37. 4,125,104; 4,126,204

Worksheet 5

1. 6
2. 2
3. 5
4. 4
5. 9
6. 7
7. 8
8. 2
9. 4,600
10. 6,200
11. 1,400
12. 7,100
13. 7,600 is nearer to 8,000 than to 7,000.
7,600 rounded to the nearest thousand is 8,000.
14. 5,500 is halfway between 5,000 and 6,000.
5,500 rounded to the nearest thousand is 6,000.
15. 8,000
16. 6,000
17. 8,000
18. 10,000
19. 274 + 516 is about
300 + 500 = 800.
20. 735 − 581 is about
700 − 600 = 100.
21. 4,862 rounds to 5,000.
5,309 rounds to 5,000.
4,862 + 5,309 is about
5,000 + 5,000 = 10,000.
22. 5,364 rounds to 5,000.
3,289 rounds to 3,000.
5,364 + 3,289 is about
5,000 + 3,000 = 8,000.
23. 6,881 rounds to 7,000.
2,708 rounds to 3,000.
6,881 + 2,708 is about
7,000 + 3,000 = 10,000.
24. 2,396 rounds to 2,000.
1,457 rounds to 1,000.
2,396 − 1,457 is about
2,000 − 1,000 = 1,000.
25. 7,643 rounds to 8,000.
1,226 rounds to 1,000.
7,643 − 1,226 is about
8,000 − 1,000 = 7,000.
26. 5,892 rounds to 6,000.
3,607 rounds to 4,000.
5,892 − 3,607 is about
6,000 − 4,000 = 2,000.
27. 7
28. 1
29. 387 + 604 is about 300 + 600 = 900.
30. 941 − 525 is about 900 − 500 = 400.
31. 5,000 + 3,000 = 8,000
528 + 476 is about 500 + 400 = 900.
900 rounded to the nearest thousand is 1,000.
8,000 + 1,000 = 9,000
5,528 + 3,476 is about 9,000.
32. 7,000 + 2,000 = 9,000
128 + 544 is about 100 + 500 = 600.
600 rounded to the nearest thousand is 1,000.
9,000 + 1,000 = 10,000
7,128 + 2,544 is about 10,000.
33. 4,000 + 7,000 = 11,000
500 + 652 is about 500 + 600 = 1,100.
1,100 rounded to the nearest thousand is 1,000.
11,000 + 1,000 = 12,000
4,500 + 7,652 is about 12,000.
34. 3,000 + 4,000 + 1,000 = 8,000
252 + 481 + 530 is about 200 + 400 + 500 = 1,100.
1,100 rounded to the nearest thousand is 1,000.
8,000 + 1,000 = 9,000
3,252 + 4,481 + 1,530 is about 9,000.
35. 7,000 + 2,000 + 8,000 = 17,000
608 + 454 + 599 is about 600 + 400 + 500 = 1,500
1,500 rounded to the nearest thousand is 2,000.
17,000 + 2,000 = 19,000
7,608 + 2,454 + 8,599 is about 19,000.
36. 9,000 − 4,000 = 5,000
720 − 138 is about 700 − 100 = 600.
600 rounded to the nearest thousand is 1,000.
5,000 + 1,000 = 6,000
9,720 − 4,138 is about 6,000.

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37. 7,000 − 2,000 = 5,000
947 − 350 is about 900 − 300 = 600.
600 rounded to the nearest thousand is 1,000.
5,000 + 1,000 = 6,000
7,947 − 2,350 is about 6,000.

38. 5,000 − 3,000 = 2,000
625 − 482 is about 600 − 400 = 200.
200 rounded to the nearest thousand is 0.
2,000 + 0 = 2,000
5,625 − 3,482 is about 2,000.

39. 7,000 − 5,000 = 2,000
420 − 33 is about 400 − 30 = 370.
370 rounded to the nearest thousand is 0.
2,000 + 0 = 2,000
7,420 − 5,033 is about 2,000.

40. 9,000 − 4,000 = 5,000
814 − 256 is about 800 − 200 = 600.
600 rounded to the nearest thousand is 1,000.
5,000 + 1,000 = 6,000
9,814 − 4,256 is about 6,000.

41. 9,000 − 3,000 = 6,000
739 − 267 is about 700 − 200 = 500.
500 rounded to the nearest thousand is 1,000.
6,000 − 1,000 = 5,000
9,267 − 3,739 is about 5,000.

42. 8,000 − 4,000 = 4,000
682 − 327 is about 600 − 300 = 300.
300 rounded to the nearest thousand is 0.
4,000 − 0 = 4,000
8,327 − 4,682 is about 4,000.

43. 6,000 − 3,000 = 3,000
795 − 259 is about 700 − 200 = 500.
500 rounded to the nearest thousand is 1,000.
3,000 − 1,000 = 2,000
6,259 − 3,795 is about 2,000.

44. 3,000 − 1,000 = 2,000
749 − 308 is about 700 − 300 = 400.
400 rounded to the nearest thousand is 0.
2,000 − 0 = 2,000
3,308 − 1,749 is about 2,000.

45. 8,000 − 6,000 = 2,000
973 − 427 is about 900 − 400 = 500.
500 rounded to the nearest thousand is 1,000.
2,000 − 1,000 = 1,000
8,427 − 6,973 is about 1,000.

46. 6,239 rounds to 6,000.
6,000 × 7 = 42,000
6,239 × 7 is about 42,000.

47. 2,506 rounds to 3,000.
3,000 × 8 = 24,000
2,506 × 8 is about 24,000.

48. 3,257 rounds to 3,000.
3,000 × 4 = 12,000
3,257 × 4 is about 12,000.

49. 8,753 rounds to 9,000.
9,000 × 6 = 54,000
8,753 × 6 is about 54,000.

50. 3,600 ÷ 9 = 400
3,508 ÷ 9 is about 400.

51. 6,300 ÷ 7 = 900
6,126 ÷ 7 is about 900.

52. 2,400 ÷ 4 = 600
2,362 ÷ 4 is about 600.

Chapter 2

Worksheet 1

1. Answers vary.
2. 12,345,678
3. Answers vary.
4. On the calculator, you will see
   a. 4782
   b. 678435
   c. 3917403
   d. 7008009
   The numbers displayed on the calculator have no commas and the zeros are rectangulars.
5. [C] [2] [5] [9] [÷] [4] [7] [8] [3] [=]
   5,042
6. 12,682
7. 7,437
8. 15,791
9. 1,374
10. 4,269 − 1,597
11. 6,677 + 23,567
12. 20,121
13. 1,414
14. 21,775
    [C] [3] [2] [5] [×] [6] [7] [=]
15. 413
    [C] [1] [6] [5] [2] [÷] [4] [=]
16. 120,666
17. 13,257
18. 160,500
19. 1,742
20. 326
21. 6,879
22. 189,992
23. 1,245
24. 78,645 ÷ 5 = 15,729
    Each charity receives $15,729.
25. 209,196 ÷ 36 = 5,811
    5,811 square tiles are needed to tile the kitchen floor.

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Worksheet 2

1. 1
2. 8
3. 50
4. 830
5. 7,260
6. 10,050
7. $17 \times 30 = 17 \times 3$ tens
   $= (17 \times 3) \times 10$
   $= 51 \times 10$
   $= 510$
8. $148 \times 60 = 148 \times 6$ tens
   $= (148 \times 6) \times 10$
   $= 888 \times 10$
   $= 8{,}880$
9. $219 \times 20 = 219 \times 2$ tens
   $= (219 \times 2) \times 10$
   $= 438 \times 10$
   $= 4{,}380$
10. $3{,}456 \times 70 = 3{,}456 \times 7$ tens
    $= (3{,}456 \times 7) \times 10$
    $= 24{,}192 \times 10$
    $= 241{,}920$
11. $2{,}135 \times 60 = 2{,}135 \times 6$ tens
    $= (2{,}135 \times 6) \times 10$
    $= 12{,}810 \times 10$
    $= 128{,}100$
12. 1
13. 5
14. 800
15. 7,400
16. 15,300
17. 598,000
18. $72 \times 300 = 72 \times 3$ hundreds
    $= (72 \times 3) \times 100$
    $= 216 \times 100$
    $= 21{,}600$
19. $326 \times 700 = 326 \times 7$ hundreds
    $= (326 \times 7) \times 100$
    $= 2{,}282 \times 100$
    $= 228{,}200$
20. $548 \times 900 = 548 \times 9$ hundreds
    $= (548 \times 9) \times 100$
    $= 4{,}932 \times 100$
    $= 493{,}200$
21. $1{,}325 \times 800 = 1{,}325 \times 8$ hundreds
    $= (1{,}325 \times 8) \times 100$
    $= 10{,}600 \times 100$
    $= 1{,}060{,}000$
22. $3{,}046 \times 600 = 3{,}046 \times 6$ hundreds
    $= (3{,}046 \times 6) \times 100$
    $= 18{,}276 \times 100$
    $= 1{,}827{,}600$
23. 1
24. 6
25. 4,000
26. 28,000
27. 205,000
28. 3,247,000
29. $69 \times 4{,}000 = 69 \times 4$ thousands
    $= (69 \times 4) \times 1{,}000$
    $= 276 \times 1{,}000$
    $= 276{,}000$
30. $217 \times 6{,}000 = 217 \times 6$ thousands
    $= (217 \times 6) \times 1{,}000$
    $= 1{,}302 \times 1{,}000$
    $= 1{,}302{,}000$
31. $528 \times 9{,}000 = 528 \times 9$ thousands
    $= (528 \times 9) \times 1{,}000$
    $= 4{,}752 \times 1{,}000$
    $= 4{,}752{,}000$
32. $1{,}324 \times 7{,}000 = 1{,}324 \times 7$ thousands
    $= (1{,}324 \times 7) \times 1{,}000$
    $= 9{,}268 \times 1{,}000$
    $= 9{,}268{,}000$
33. $2{,}305 \times 4{,}000 = 2{,}305 \times 4$ thousands
    $= (2{,}305 \times 4) \times 1{,}000$
    $= 9{,}220 \times 1{,}000$
    $= 9{,}220{,}000$
34. 60
35. 20
36. 300
37. 800
38. 87 × 63 is about 90 × 60 = 5,400.
39. 94 × 247 is about 90 × 200 = 18,000.
40. 249 × 63 is about 200 × 60 = 12,000.
41. 364 × 73 is about 400 × 70 = 28,000.
42. 3,000
43. 8,000
44. 5,612 × 32 is about 6,000 × 30 = 180,000.
45. 3,409 × 45 is about 3,000 × 50 = 150,000.
46. 92 × 1,485 is about 90 × 1,000 = 90,000.
47. 79 × 4,243 is about 80 × 4,000 = 320,000.

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Worksheet 3

1. 38; 2
2. 26; 4
3. 57; 6
4. 48; 9
5. 25 × 30 = 25 × 3 tens
   = 75 tens
   = 75 × 10
   = 750
6. 46 × 50 = 46 × 5 tens
   = 230 tens
   = 230 × 10
   = 2,300
7. 38 × 40 = 38 × 4 tens
   = 152 tens
   = 152 × 10
   = 1,520
8. 1,380
9. 3,480
10. 48 × 62 = 2,976

```
    48
×   62
    96
 2,880
 2,976
```

Estimate:
48 rounds to 50.
62 rounds to 60.
50 × 60 = 3,000

The estimate shows the answer 2,976 is reasonable.

11. 92 × 27 = 2,484

```
    92
×   27
   644
 1,840
 2,484
```

Estimate:
92 × 27 is about
90 × 30 = 2,700.

The estimate shows the answer 2,484 is reasonable.

12. 52 × 81 = 4,212

```
    52
×   81
    52
 4,160
 4,212
```

Estimate:
52 × 81 is about
50 × 80 = 4,000.

The estimate shows the answer 4,212 is reasonable.

13. 48 × 27 = 1,296

```
    48
×   27
   336
   960
 1,296
```

Estimate:
48 × 27 is about
50 × 30 = 1,500.

The estimate shows the answer 1,296 is reasonable.

14. 63 × 59 = 3,717

```
    63
×   59
   567
 3,150
 3,717
```

Estimate:
63 × 59 is about
60 × 60 = 3,600.

The estimate shows the answer 3,717 is reasonable.

15. 127 × 53 = 6,731

```
   127
×   53
   381
 6,350
 6,731
```

Estimate:
127 rounds to 100.
53 rounds to 50.
100 × 50 = 5,000

The estimate shows the answer 6,731 is reasonable.

16. 203 × 72 = 14,616

```
   203
×   72
   406
14,210
14,616
```

Estimate:
203 × 72 is about
200 × 70 = 14,000.

The estimate shows the answer 14,616 is reasonable.

17. 458 × 34 = 15,572

```
   458
×   34
 1,832
13,740
15,572
```

Estimate:
458 × 34 is about
500 × 30 = 15,000.

The estimate shows the answer 15,572 is reasonable.

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18. 574 × 26 = 14,924

```
   574
 ×  26
 3,444
11,480
14,924
```

Estimate:
574 × 26 is about
600 × 30 = 18,000.

The estimate shows the answer 14,924 is reasonable.

19. 728 × 36 = 26,208

```
   728
 ×  36
 4,368
21,840
26,208
```

Estimate:
728 × 36 is about
700 × 40 = 28,000.

The estimate shows the answer 26,208 is reasonable.

20. 1,825 × 48 = 87,600

```
 1,825
 ×  48
14,600
73,000
87,600
```

Estimate:
1,825 rounds to 2,000.
48 rounds to 50.
2,000 × 50 = 100,000.

The estimate shows the answer 87,600 is reasonable.

21. 2,175 × 62 = 134,850

```
 2,175
 ×  62
 4,350
130,500
134,850
```

Estimate:
2,175 × 62 is about
2,000 × 60 = 120,000.

The estimate shows the answer 134,850 is reasonable.

22. 4,120 × 77 = 317,240

```
 4,120
 ×  77
28,840
288,400
317,240
```

Estimate:
4,120 × 77 is about
4,000 × 80 = 320,000.

The estimate shows the answer 317,240 is reasonable.

23. 1,608 × 43 = 69,144

```
 1,608
 ×  43
 4,824
64,320
69,144
```

Estimate:
1,608 × 43 is about
2,000 × 40 = 80,000.

The estimate shows the answer 69,144 is reasonable.

24. 4,637 × 59 = 273,583

```
 4,637
 ×  59
41,733
231,850
273,583
```

Estimate:
4,637 × 59 is about
5,000 × 60 = 300,000.

The estimate shows the answer 273,583 is reasonable.

Worksheet 4

1. 12

Think of multiplication.
12 × 10 = 120
So, 120 ÷ 10 = 12.

2. 72
3. 97
4. 286
5. 379
6. 680 ÷ 40 = (680 ÷ 10) ÷ 4
   = 68 ÷ 4
   = 17
7. 1,920 ÷ 60 = (1,920 ÷ 10) ÷ 6
   = 192 ÷ 6
   = 32
8. 2,880 ÷ 80 = (2,880 ÷ 10) ÷ 8
   = 288 ÷ 8
   = 36
9. 6
10. 7
11. 7
12. 24
13. 42
14. 28
15. 5,600 ÷ 400 = (5,600 ÷ 100) ÷ 4
    = 56 ÷ 4
    = 14
16. 8,400 ÷ 700 = (8,400 ÷ 100) ÷ 7
    = 84 ÷ 7
    = 12

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17. $27{,}600 \div 600 = (\underline{27{,}600} \div 100) \div \underline{6}$
$= \underline{276} \div \underline{6}$
$= \underline{46}$

18. 9

19. 8

20. 8

21. 9

22. 49

23. 75

24. $52{,}000 \div 4{,}000 = (\underline{52{,}000} \div 1{,}000) \div \underline{4}$
$= \underline{52} \div \underline{4}$
$= \underline{13}$

25. $91{,}000 \div 7{,}000 = (\underline{91{,}000} \div 1{,}000) \div \underline{7}$
$= \underline{91} \div \underline{7}$
$= \underline{13}$

26. $144{,}000 \div 6{,}000 = (\underline{144{,}000} \div 1{,}000) \div \underline{6}$
$= \underline{144} \div \underline{6}$
$= \underline{24}$

27. 12

28. 16

29. 23

30. $\underline{140} \div \underline{70} = \underline{2}$

72 rounds to 70.
140 is close to 138 and can be divided by 70.

31. $\underline{320} \div \underline{80} = \underline{4}$

84 rounds to 80.
320 is close to 314 and can be divided by 80.

32. $1{,}200 \div 60 = 20$

58 rounds to 60.
1,200 is close to 1,080 and can be divided by 60.

33. $4{,}800 \div 20 = 240$

24 rounds to 20.
4,800 is close to 4,752 and can be divided by 20.

Worksheet 5

1. 17

2. 35

3. 15

4. 7

$4 \times \underline{7} = 28$
$40 \times \underline{7} = 280$
The answer is 7.

5. 90

6. 50

7. 9 R 20

$$\begin{array}{r} 9 \\ 30\overline{)\,2\;9\;0} \\ \underline{2\;7\;0} \\ 2\;0 \end{array}$$

8. 8 R 10

9. 2 R 11

$$\begin{array}{r} 2 \\ 35\overline{)\,8\;1} \\ \underline{7\;0} \\ 1\;1 \end{array}$$

10. 3 R 1

$$\begin{array}{r} 3 \\ 26\overline{)\,7\;9} \\ \underline{7\;8} \\ 1 \end{array}$$

11. 3 R 20

12. 3 R 16

13. 6 R 39

$$\begin{array}{r} 6 \\ 40\overline{)\,2\;7\;9} \\ \underline{2\;4\;0} \\ 3\;9 \end{array}$$

14. 4 R 63

15. 7 R 6

16. 13 R 27

$$\begin{array}{r} 1\;3 \\ 30\overline{)\,4\;1\;7} \\ \underline{3\;0\;0} \\ 1\;1\;7 \\ \underline{\;\;9\;0} \\ 2\;7 \end{array}$$

17. 21 R 33

18. 21 R 2

19. 25 R 9

$$\begin{array}{r} 2\;5 \\ 50\overline{)\,1,\,2\;5\;9} \\ \underline{1,\,0\;0\;0} \\ 2\;5\;9 \\ \underline{2\;5\;0} \\ 9 \end{array}$$

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20. 19 R 56

```
        1 9
70) 1, 3 8 6
      7 0 0
      -----
      6 8 6
      6 3 0
      -----
        5 6
```

21. 59 R 7

22. 58 R 20

23. 122 R 13

```
        1 2 2
15) 1, 8 4 3
    1, 5 0 0
    -------
      3 4 3
      3 0 0
      -----
        4 3
        3 0
      -----
        1 3
```

24. 114 R 11

```
        1 1 4
18) 2, 0 6 3
    1, 8 0 0
    -------
      2 6 3
      1 8 0
      -----
        8 3
        7 2
      -----
        1 1
```

25. 154 R 14

26. 141 R 12

Worksheet 6

1. $15 + 8 - 12 = \underline{23} - \underline{12}$
   $= \underline{11}$

2. $28 - 13 + 17 = 15 + 17$
   $= 32$

3. $21 - 19 + 16 = 2 + 16$
   $= 18$

4. $22 + 7 - 15 + 9 = \underline{29} - \underline{15} + \underline{9}$
   $= \underline{14} + \underline{9}$
   $= \underline{23}$

5. $18 - 9 + 26 - 14 = 9 + 26 - 14$
   $= 35 - 14$
   $= 21$

6. $64 - 27 + 13 - 28 = 37 + 13 - 28$
   $= 50 - 28$
   $= 22$

7. $12 \times 9 \div 6 = \underline{108} \div \underline{6}$
   $= \underline{18}$

8. $25 \div 5 \times 15 = 5 \times 15$
   $= 75$

9. $252 \div 6 \times 18 = 42 \times 18$
   $= 756$

10. $14 \times 9 \div 21 = 126 \div 21$
    $= 6$

11. $210 - 120 \div 10 = \underline{210} - \underline{12}$
    $= \underline{198}$

12. $174 + 240 \div 3 = \underline{174} + \underline{80}$
    $= \underline{254}$

13. $72 \times 6 - 18 = \underline{432} - \underline{18}$
    $= \underline{414}$

14. $476 \div 7 - 15 = \underline{68} - \underline{15}$
    $= \underline{53}$

15. $124 \times 8 + 59 = \underline{992} + \underline{59}$
    $= \underline{1{,}051}$

16. $756 \div 9 + 142 = \underline{84} + \underline{142}$
    $= \underline{226}$

17. $24 + 36 \times 3 = 24 + 108$
    $= 132$

18. $176 - 480 \div 8 = 176 - 60$
    $= 116$

19. $212 + 368 \div 4 = 212 + 92$
    $= 304$

20. $472 \div 8 - 26 = 59 - 26$
    $= 33$

21. $108 \times 9 + 137 = 972 + 137$
    $= 1{,}109$

22. $826 \div 7 + 247 = 118 + 247$
    $= 365$

23. $17 \times 2 - 75 \div 5 = 34 - 15$
    $= 19$

24. $28 \times 3 + 72 \div 9 = 84 + 8$
    $= 92$

25. $128 \div 4 - 156 \div 6 = 32 - 26$
    $= 6$

26. $4 \times 79 - 225 \div 5 = 316 - 45$
    $= 271$

27. $217 + 96 \div 8 - 139 = 217 + 12 - 139$
    $= 229 - 139$
    $= 90$

28. $414 + 176 \div 8 \times 3 = 414 + 22 \times 3$
    $= 414 + 66$
    $= 480$

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29. $164 + (135 - 78) = \underline{164} + \underline{57}$
$= \underline{221}$

30. $36 - (150 - 126) = \underline{36} - \underline{24}$
$= \underline{12}$

31. $408 - (219 + 39) = \underline{408} - \underline{258}$
$= \underline{150}$

32. $6 \times (124 - 77) = \underline{6} \times \underline{47}$
$= \underline{282}$

33. $476 \div (3 + 4) = \underline{476} \div \underline{7}$
$= \underline{68}$

34. $8 \times (273 - 169) = \underline{8} \times \underline{104}$
$= \underline{832}$

35. $8 \times (24 + 15) = 8 \times 39$
$= 312$

36. $100 \div (5 \times 5) = 100 \div 25$
$= 4$

37. $43 + (37 \times 8) = 43 + 296$
$= 339$

38. $324 \div (102 - 96) = 324 \div 6$
$= 54$

39. $253 + (162 - 59) = 253 + 103$
$= 356$

40. $552 \div (5 + 3) = 552 \div 8$
$= 69$

41. $517 - (309 + 107) = 517 - 416$
$= 101$

42. $9 \times (500 - 256) = 9 \times 244$
$= 2{,}196$

43. $24 + (35 + 77) \div 8 = \underline{24} + \underline{112} \div \underline{8}$
$= \underline{24} + \underline{14}$
$= \underline{38}$

44. $12 \times 7 - (145 \div 5) = \underline{84} - \underline{29}$
$= \underline{55}$

45. $4 \times (248 \div 4) + 8 = \underline{4} \times \underline{62} + \underline{8}$
$= \underline{248} + \underline{8}$
$= \underline{256}$

46. $483 \div (82 - 75) + 326 = \underline{483} \div \underline{7} + \underline{326}$
$= \underline{69} + \underline{326}$
$= \underline{395}$

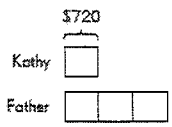
47. $99 - 43 + (28 \div 7) = 99 - 43 + 4$
$= 56 + 4$
$= 60$

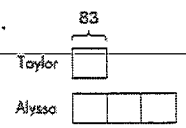
48. $(59 - 23) - 4 \times 8 = 36 - 32$
$= 4$

Worksheet 7

1. C
2. A
3. D
4. C
5. $\underline{4{,}104} \div 57 = 72$
The number is $\underline{4{,}104}$.
6. $5{,}520 \div 46 = 120$
The number is 120.
7. $7{,}098 \div 78 = 91$
The other number is 91.
8. $56 \times 45 = 2{,}520$
He can type 2,520 words in 45 minutes.
9. $\$7{,}392 \div 48 = \$154$
She paid \$154 each month.
10. $275 \div 4 = 68$ R 3
She needs 69 sticks.
11. $(6 + 7) \times 125 = 1{,}625$
He bought 1,625 berries.
12. $\$12{,}750 - (\$475 \times 22) = \$2{,}300$
She owed the bank \$2,300 after 22 months.
13. Number of hours Harry works on weekdays
$= 5 \times 8 = 40$ hours
Amount Harry makes on weekdays
$= 40 \times \$15 = \$600$
Number of hours Harry works on weekends
$= 2 \times 5 = 10$ hours
Amount Harry makes on weekends
$= 10 \times \$25 = \$250$
Total amount he makes in a week
$= \$600 + \$250 = \$850$
Harry makes \$850 in a week.

Worksheet 8

1. 

2. a. 

b. $3 \times 83 = 249$
Alyssa has 249 stamps.
c. $249 + 83 = 332$
They have 332 stamps altogether.

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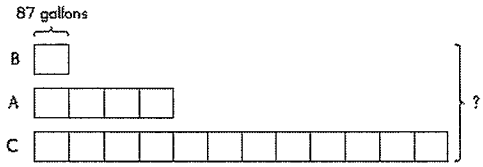
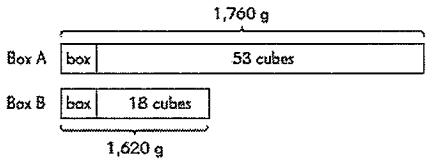
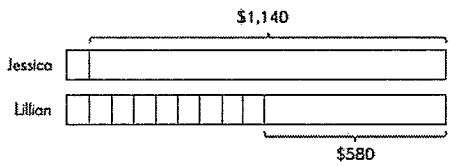
3. 

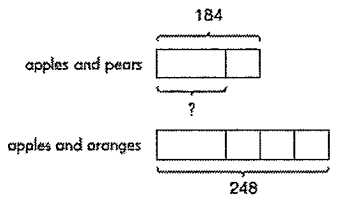
1 + 4 + 12 = 17
17 × 87 = 1,479
1,479 gallons of water are in the three containers altogether.

4. 

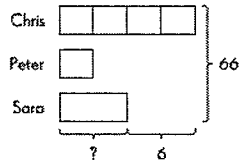
53 − 18 = 35
35 cubes → 1,760 − 1,620 = 140 g
1 cube → 4 g
The mass of each cube is 4 grams.

5. 

8 units → $1,140 − $580 = $560
1 unit → $560 ÷ 8 = $70
Amount of money each girl had at first
= $70 + $1,140
= $1,210
Each girl had $1,210 at first.

6. 

2 units → 248 − 184 = 64
1 unit → 32
184 − 32 = 152
There are 152 apples in the crate.

7. 

Total age of Chris, Peter, and Sara = 66
66 + 6 = 72 years
9 units → 72
1 unit → 8
4 units → 4 × 8 = 32
32 − 6 = 26
Sara is 26 years old.

Chapter 3

Worksheet 1

1. $\frac{2}{5}$ 2. $\frac{1}{3}$
3. Answers vary. Samples: $\frac{2}{5}$; $\frac{2}{7}$
4. Answers vary. Samples: $\frac{7}{10}$; $\frac{5}{6}$
5. Answers vary. Samples: $\frac{3}{7}$; $\frac{4}{9}$
6. Answers vary. Samples: $\frac{7}{9}$; $\frac{3}{7}$
7. Set 1: $\frac{5}{9}$, $\frac{8}{9}$, $\frac{1}{9}$
   Set 2: $\frac{3}{8}$, $\frac{7}{8}$
   Set 3: $\frac{2}{7}$, $\frac{3}{7}$
8. 3, 6, 9, 12, 15, 18
9. 4, 8, 12, 16, 20, 24
10. 4 11. $\frac{8}{10}$
12. $\frac{1}{3} = \frac{2}{6} = \frac{3}{9}$
    The least common denominator of $\frac{1}{3}$ and $\frac{2}{9}$ is 9.
13. $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16}$
    The least common denominator of $\frac{3}{4}$ and $\frac{1}{16}$ is 16.
14. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15}$
    The least common denominator of $\frac{2}{3}$ and $\frac{2}{15}$ is 15.

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15. $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$; $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

$\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$; $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

The least common denominator of $\frac{1}{3}$ and $\frac{3}{4}$ is 12.

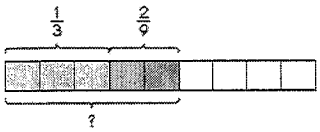
16. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$; $\frac{1}{6} = \frac{2}{12}$

The least common denominator of $\frac{1}{4}$ and $\frac{1}{6}$ is 12.

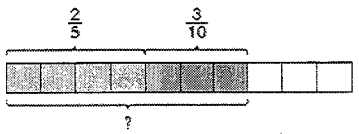
17. $\frac{5}{6} = \frac{10}{12} = \frac{15}{18} = \frac{20}{24}$

$\frac{7}{8} = \frac{14}{16} = \frac{21}{24}$

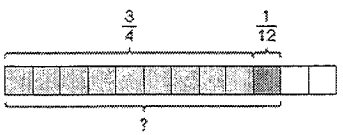
The least common denominator of $\frac{5}{6}$ and $\frac{7}{8}$ is 24.

18. 

$\frac{1}{3} + \frac{2}{9} = \boxed{\frac{3}{9}} + \boxed{\frac{2}{9}} = \boxed{\frac{5}{9}}$

19. 

$\frac{2}{5} + \frac{3}{10} = \boxed{\frac{4}{10}} + \boxed{\frac{3}{10}} = \boxed{\frac{7}{10}}$

20. 

$\frac{3}{4} + \frac{1}{12} = \boxed{\frac{9}{12}} + \boxed{\frac{1}{12}} = \boxed{\frac{10}{12}} = \boxed{\frac{5}{6}}$

21. $\frac{1}{4} + \frac{1}{2} = \frac{1}{4} + \boxed{\frac{2}{4}} = \boxed{\frac{3}{4}}$

22. $\frac{1}{10} + \frac{1}{5} = \frac{1}{10} + \frac{2}{10} = \frac{3}{10}$

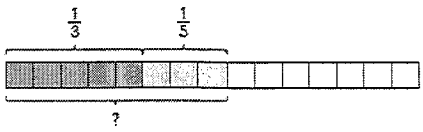
23. $\frac{2}{3} + \frac{1}{6} = \frac{4}{6} + \frac{1}{6} = \frac{5}{6}$

24. $\frac{3}{4} + \frac{1}{8} = \frac{6}{8} + \frac{1}{8} = \frac{7}{8}$

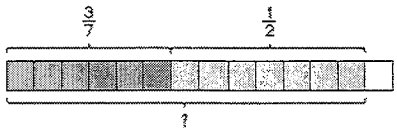
25. $\frac{1}{9} + \frac{2}{3} = \frac{1}{9} + \frac{6}{9} = \frac{7}{9}$

26. $\frac{1}{4} + \frac{1}{12} = \frac{3}{12} + \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$

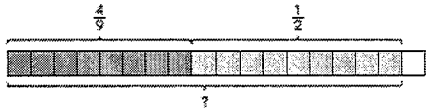
27. $\frac{2}{3} + \frac{1}{12} = \frac{8}{12} + \frac{1}{12} = \frac{9}{12} = \frac{3}{4}$

28. 

$\frac{1}{3} + \frac{1}{5} = \boxed{\frac{5}{15}} + \boxed{\frac{3}{15}} = \boxed{\frac{8}{15}}$

29. 

$\frac{3}{7} + \frac{1}{2} = \boxed{\frac{6}{14}} + \boxed{\frac{7}{14}} = \boxed{\frac{13}{14}}$

30. 

$\frac{4}{9} + \frac{1}{2} = \boxed{\frac{8}{18}} + \boxed{\frac{9}{18}} = \boxed{\frac{17}{18}}$

31. $\frac{1}{5} + \frac{1}{2} = \frac{2}{10} + \boxed{\frac{5}{10}} = \boxed{\frac{7}{10}}$

32. $\frac{1}{4} + \frac{1}{9} = \frac{9}{36} + \frac{4}{36} = \frac{13}{36}$

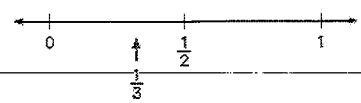
33. $\frac{1}{7} + \frac{1}{8} = \frac{8}{56} + \frac{7}{56} = \frac{15}{56}$

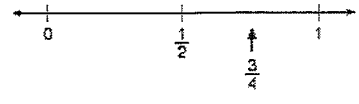
34. $\frac{2}{5} + \frac{1}{4} = \frac{8}{20} + \frac{5}{20} = \frac{13}{20}$

35. $\frac{2}{5} + \frac{3}{8} = \frac{16}{40} + \frac{15}{40} = \frac{31}{40}$

36. $\frac{2}{9} + \frac{2}{7} = \frac{14}{63} + \frac{18}{63} = \frac{32}{63}$

37. $\frac{3}{11} + \frac{2}{3} = \frac{9}{33} + \frac{22}{33} = \frac{31}{33}$

38. 

39. 

40. $\frac{1}{2}$

41. $\underline{1} + \underline{1} = \underline{2}$

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43. $\frac{1}{2} + \frac{1}{2} + \underline{1} = \underline{2}$

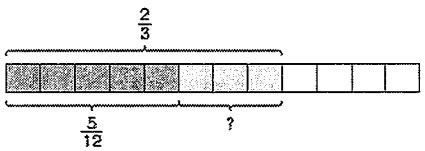
44. $\frac{1}{2} + 1 = 1\frac{1}{2}$

45. $\frac{1}{2} + \frac{1}{2} = 1$

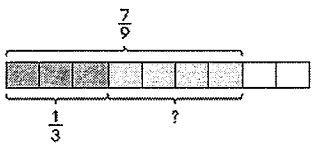
46. $\frac{1}{2} + 1 + 1 = 2\frac{1}{2}$

47. $1 + 1 + 1 = 3$

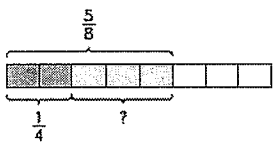
Worksheet 2

1. 

$\frac{2}{3} - \frac{5}{12} = \boxed{\frac{8}{12}} - \boxed{\frac{5}{12}} = \boxed{\frac{3}{12}} = \boxed{\frac{1}{4}}$

2. 

$\frac{7}{9} - \frac{1}{3} = \boxed{\frac{7}{9}} - \boxed{\frac{3}{9}} = \boxed{\frac{4}{9}}$

3. 

$\frac{5}{8} - \frac{1}{4} = \boxed{\frac{5}{8}} - \boxed{\frac{2}{8}} = \boxed{\frac{3}{8}}$

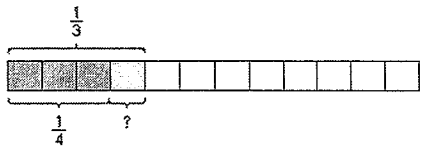
4. $\frac{1}{2} - \frac{1}{8} = \frac{4}{8} - \boxed{\frac{1}{8}} = \boxed{\frac{3}{8}}$

5. $\frac{1}{5} - \frac{1}{10} = \frac{2}{10} - \frac{1}{10} = \frac{1}{10}$

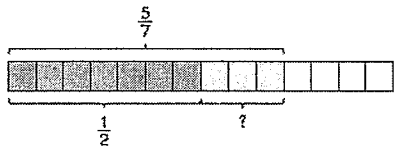
6. $\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

7. $\frac{7}{8} - \frac{1}{4} = \frac{7}{8} - \frac{2}{8} = \frac{5}{8}$

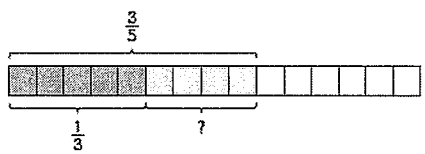
8. $\frac{3}{4} - \frac{5}{12} = \frac{9}{12} - \frac{5}{12} = \frac{4}{12} = \frac{1}{3}$

9. 

$\frac{1}{3} - \frac{1}{4} = \boxed{\frac{4}{12}} - \boxed{\frac{3}{12}} = \boxed{\frac{1}{12}}$

10. 

$\frac{5}{7} - \frac{1}{2} = \boxed{\frac{10}{14}} - \boxed{\frac{7}{14}} = \boxed{\frac{3}{14}}$

11. 

$\frac{3}{5} - \frac{1}{3} = \boxed{\frac{9}{15}} - \boxed{\frac{5}{15}} = \boxed{\frac{4}{15}}$

12. $\frac{1}{3} - \frac{1}{5} = \frac{5}{15} - \boxed{\frac{3}{15}} = \boxed{\frac{2}{15}}$

13. $\frac{1}{5} - \frac{1}{6} = \frac{6}{30} - \frac{5}{30} = \frac{1}{30}$

14. $\frac{1}{7} - \frac{1}{8} = \frac{8}{56} - \frac{7}{56} = \frac{1}{56}$

15. $\frac{4}{5} - \frac{1}{4} = \frac{16}{20} - \frac{5}{20} = \frac{11}{20}$

16. $\frac{5}{8} - \frac{3}{5} = \frac{25}{40} - \frac{24}{40} = \frac{1}{40}$

17. 1

18. $\frac{1}{2}$

19. $\frac{1}{2} - \underline{0} = \frac{1}{2}$

20. $\underline{1} - \frac{1}{2} = \frac{1}{2}$

21. $\underline{1} - \underline{1} = \underline{0}$

22. $\underline{1} - \frac{1}{2} = \frac{1}{2}$

23. $1 - \frac{1}{2} = \frac{1}{2}$

24. $\underline{1} - \underline{0} = \underline{1}$

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25. $\frac{1}{2} - \frac{1}{2} = \underline{0}$

26. $\underline{1} - \frac{1}{2} = \frac{1}{2}$

Worksheet 3

1. $\frac{4}{3} = \frac{3}{3} + \frac{1}{3}$
$= 1 + \boxed{\frac{1}{3}}$
$= \boxed{1\frac{1}{3}}$

2. $\frac{6}{5} = \boxed{\frac{5}{5}} + \boxed{\frac{1}{5}}$
$= 1 + \boxed{\frac{1}{5}}$
$= \boxed{1\frac{1}{5}}$

3. $\frac{7}{3} = \frac{6}{3} + \frac{1}{3}$
$= 2 + \frac{1}{3}$
$= 2\frac{1}{3}$

4. $\frac{9}{5} = \frac{5}{5} + \frac{4}{5}$
$= 1 + \frac{4}{5}$
$= 1\frac{4}{5}$

5. $\underline{4} \div \underline{7} = \boxed{\frac{4}{7}}$

6. $\boxed{\frac{4}{5}}$

7. $\boxed{\frac{5}{9}}$

8. $\boxed{\frac{7}{11}}$

9. $\boxed{\frac{5}{8}}$

10. $\frac{3}{8} = \underline{3} \div \underline{8}$

11. $\frac{5}{6} = \underline{5} \div \underline{6}$

12. $\frac{4}{11} = \underline{4} \div \underline{11}$

13. $\underline{4} \div \underline{3} = \boxed{\frac{4}{3}}$
$= \boxed{\frac{3}{3}} + \boxed{\frac{1}{3}}$
$= \boxed{1} + \boxed{\frac{1}{3}}$
$= \boxed{1}\boxed{\frac{1}{3}}$

14. $8 \div 5 = \boxed{\frac{8}{5}}$
$= \boxed{\frac{5}{5}} + \boxed{\frac{3}{5}}$
$= \boxed{1} + \boxed{\frac{3}{5}} = \boxed{1}\boxed{\frac{3}{5}}$

15. $7 \div 2 = \boxed{\frac{7}{2}}$
$= \boxed{\frac{6}{2}} + \boxed{\frac{1}{2}}$
$= \boxed{3} + \boxed{\frac{1}{2}} = \boxed{3}\boxed{\frac{1}{2}}$

16. $10 \div 3 = \frac{10}{3}$
$= \frac{9}{3} + \frac{1}{3}$
$= 3 + \frac{1}{3}$
$= 3\frac{1}{3}$

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17. $17 \div 6 = \frac{17}{6}$
$= \frac{12}{6} + \frac{5}{6}$
$= 2 + \frac{5}{6}$
$= 2\frac{5}{6}$

18. $\underline{5} \div \underline{2} = \underline{2\frac{1}{2}}$

$$\begin{array}{r} \boxed{2} \\ \boxed{2}\overline{)\boxed{5}} \\ \boxed{4} \\ \hline \boxed{1} \end{array}$$

19. $9 \div 2 = 4\frac{1}{2}$

20. $14 \div 4 = 3\frac{2}{4}$
$= 3\frac{1}{2}$

Worksheet 4

1. $\frac{4}{10} = \underline{0.4}$; $\frac{6}{10} = \underline{0.6}$; $\frac{9}{10} = \underline{0.9}$

2. $\frac{25}{100} = \underline{0.25}$; $\frac{55}{100} = \underline{0.55}$; $\frac{85}{100} = \underline{0.85}$

3. 0.7
4. 0.3
5. 0.15
6. 0.43
7. 0.82
8. 0.66

9. $\frac{\boxed{4} \times \boxed{2}}{\boxed{5} \times \boxed{2}} = \frac{\boxed{8}}{10} = \underline{0.8}$

10. $\frac{\boxed{3} \times \boxed{25}}{\boxed{4} \times \boxed{25}} = \frac{\boxed{75}}{100} = \underline{0.75}$

11. $\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10} = 0.5$

12. $\frac{12}{50} = \frac{12 \times 2}{50 \times 2} = \frac{24}{100} = 0.24$

13. $\frac{9}{20} = \frac{9 \times 5}{20 \times 5} = \frac{45}{100} = 0.45$

14. $\frac{21}{25} = \frac{21 \times 4}{25 \times 4} = \frac{84}{100} = 0.84$

15. $5 \div 4 = \frac{\boxed{5}}{4}$
$= \frac{\boxed{4}}{4} + \frac{\boxed{1}}{4}$
$= \underline{1} + \underline{0.25}$
$= \underline{1.25}$

16. $7 \div 2 = \frac{\boxed{7}}{2}$
$= \frac{\boxed{6}}{2} + \frac{\boxed{1}}{2}$
$= \underline{3} + \underline{0.5}$
$= \underline{3.5}$

17. $13 \div 10 = \frac{13}{10} = \frac{10}{10} + \frac{3}{10}$
$= 1 + 0.3$
$= 1.3$

18. $7 \div 5 = \frac{7}{5} = \frac{5}{5} + \frac{2}{5} = 1 + \frac{2}{5} = 1.4$

19. $10 \div 8 = \frac{10}{8} = \frac{8}{8} + \frac{2}{8}$
$= 1 + \frac{1}{4}$
$= 1 + \frac{25}{100}$
$= 1 + 0.25 = 1.25$

20. $35 \div 25 = \frac{35}{25} = \frac{25}{25} + \frac{10}{25}$
$= 1 + \frac{40}{100}$
$= 1 + 0.4 = 1.4$

21. $3\frac{11}{25} = 3 + \frac{\boxed{11}}{25}$
$= \underline{3} + \underline{0.44}$
$= \underline{3.44}$

$\frac{11}{25} = \frac{\boxed{44}}{100} = \underline{0.44}$

22. $5\frac{17}{20} = \boxed{5} + \boxed{\frac{17}{20}}$
$= \underline{5} + \underline{0.85}$
$= \underline{5.85}$

$\frac{17}{20} = \frac{\boxed{85}}{100} = \underline{0.85}$

23. $2\frac{3}{4} = 2 + \frac{3}{4}$
$= 2 + 0.75$
$= 2.75$

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24. $5\frac{49}{50} = 5 + \frac{49}{50}$
$= 5 + 0.98$
$= 5.98$

Worksheet 5

1. $\frac{3}{4} + \frac{1}{2} = \frac{\boxed{3}}{4} + \frac{\boxed{2}}{4}$
$= \frac{\boxed{5}}{4}$
$= \boxed{1\frac{1}{4}}$

2. $\frac{2}{3} + \frac{5}{6} = \frac{\boxed{4}}{6} + \frac{\boxed{5}}{6}$
$= \frac{\boxed{9}}{6}$
$= \boxed{1}\frac{\boxed{3}}{6}$
$= \boxed{1\frac{1}{2}}$

3. $\frac{7}{8} + \frac{3}{4} = \frac{7}{8} + \frac{6}{8}$
$= \frac{13}{8}$
$= 1\frac{5}{8}$

4. $\frac{2}{3} + \frac{4}{9} = \frac{6}{9} + \frac{4}{9}$
$= \frac{10}{9}$
$= 1\frac{1}{9}$

5. $1\frac{3}{8} + \frac{3}{4} = \boxed{1} + \boxed{\frac{3}{8}} + \boxed{\frac{6}{8}}$
$= \boxed{1\frac{9}{8}}$
$= \boxed{2\frac{1}{8}}$

6. $\frac{5}{6} + 2\frac{5}{12} = \frac{10}{12} + \frac{5}{12} + 2$
$= \frac{15}{12} + 2$
$= 1\frac{3}{12} + 2$
$= 1\frac{1}{4} + 2$
$= 3\frac{1}{4}$

7. $3\frac{2}{3} + \frac{5}{9} = 3 + \frac{2}{3} + \frac{5}{9}$
$= 3 + \frac{6}{9} + \frac{5}{9}$
$= 3 + \frac{11}{9}$
$= 3\frac{11}{9}$
$= 4\frac{2}{9}$

8. $2\frac{1}{5} + 4\frac{1}{6} = 2\frac{\boxed{6}}{30} + 4\frac{\boxed{5}}{30}$
$= \boxed{6\frac{11}{30}}$

9. $3\frac{1}{7} + 5\frac{1}{3} = 3\frac{\boxed{3}}{21} + 5\frac{\boxed{7}}{21}$
$= \boxed{8\frac{10}{21}}$

10. $2\frac{2}{3} + 1\frac{3}{5} = 2\frac{10}{15} + 1\frac{9}{15}$
$= 3\frac{19}{15}$
$= 4\frac{4}{15}$

11. $1\frac{5}{7} + 3\frac{1}{2} = 1\frac{10}{14} + 3\frac{7}{14}$
$= 4\frac{17}{14}$
$= 5\frac{3}{14}$

12. $2\frac{3}{4} + 4\frac{3}{5} = 2\frac{15}{20} + 4\frac{12}{20}$
$= 6\frac{27}{20}$
$= 7\frac{7}{20}$

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13. $3\frac{3}{7} + 2\frac{5}{6} = 3\frac{18}{42} + 2\frac{35}{42}$
$= 5\frac{53}{42}$
$= 6\frac{11}{42}$

14. $2\frac{1}{2} + 4\frac{1}{2} = 7$

15. $5 + 3\frac{1}{2} = 8\frac{1}{2}$

16. $4 + 7 = 11$

Worksheet 6

1. $\frac{3}{4} - \frac{3}{8} = \frac{\boxed{6}}{8} - \frac{\boxed{3}}{8}$
$= \frac{\boxed{3}}{8}$

2. $\frac{2}{3} - \frac{4}{9} = \frac{\boxed{6}}{9} - \frac{\boxed{4}}{9}$
$= \frac{\boxed{2}}{9}$

3. $\frac{5}{6} - \frac{5}{12} = \frac{10}{12} - \frac{5}{12}$
$= \frac{5}{12}$

4. $\frac{7}{12} - \frac{1}{4} = \frac{7}{12} - \frac{3}{12}$
$= \frac{4}{12}$
$= \frac{1}{3}$

5. $2\frac{7}{8} - \frac{1}{2} = 2\frac{\boxed{7}}{8} - \frac{\boxed{4}}{8}$
$= \boxed{2\frac{3}{8}}$

6. $4\frac{2}{3} - \frac{1}{9} = 4\frac{6}{9} - \frac{1}{9}$
$= 4\frac{5}{9}$

7. $3\frac{3}{4} - \frac{5}{12} = 3\frac{9}{12} - \frac{5}{12}$
$= 3\frac{4}{12}$
$= 3\frac{1}{3}$

8. $3\frac{1}{2} - 1\frac{1}{3} = 3\frac{\boxed{3}}{6} - 1\frac{\boxed{2}}{6}$
$= \boxed{2\frac{1}{6}}$

9. $4\frac{1}{3} - 1\frac{1}{5} = 4\frac{5}{15} - 1\frac{3}{15}$
$= 3\frac{2}{15}$

10. $5\frac{1}{5} - 2\frac{1}{7} = 5\frac{7}{35} - 2\frac{5}{35}$
$= 3\frac{2}{35}$

11. $6\frac{1}{4} - 3\frac{1}{8} = 6\frac{2}{8} - 3\frac{1}{8}$
$= 3\frac{1}{8}$

12. $5\frac{1}{10} - 2\frac{1}{5} = 5\frac{1}{10} - 2\frac{2}{10}$
$= 4\frac{11}{10} - 2\frac{2}{10}$
$= 2\frac{9}{10}$

13. $4\frac{1}{3} - 1\frac{7}{9} = 4\frac{3}{9} - 1\frac{7}{9}$
$= 3\frac{12}{9} - 1\frac{7}{9}$
$= 2\frac{5}{9}$

14. $3\frac{2}{3} - 1\frac{3}{4} = 3\frac{8}{12} - 1\frac{9}{12}$
$= 2\frac{20}{12} - 1\frac{9}{12}$
$= 1\frac{11}{12}$

15. $4\frac{3}{4} - 2\frac{4}{5} = 4\frac{15}{20} - 2\frac{16}{20}$
$= 3\frac{35}{20} - 2\frac{16}{20}$
$= 1\frac{19}{20}$

16. $\frac{1}{8} \rightarrow 0$; $\frac{11}{12} \rightarrow 1$
$5 - 3 = 2$

17. $\frac{3}{4} \rightarrow 1$; $\frac{6}{7} \rightarrow 1$
$5 - 3 = 2$

18. $\frac{2}{9} \rightarrow 0$; $\frac{7}{8} \rightarrow 1$
$7 - 2 = 5$

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Worksheet 7

1. $3 \div 7 = \frac{3}{7}$

   There was $\frac{3}{7}$ liter of water in each glass.

2. $20 \div 8 = 2\frac{1}{2}$

   Each child got $2\frac{1}{2}$ slices of bread.

3. $\frac{1}{4} + \frac{7}{12} = \frac{3}{12} + \frac{7}{12}$
   $= \frac{10}{12}$
   $= \frac{5}{6}$

   Mrs. Williams gave $\frac{5}{6}$ of the watermelons away.

4. $\frac{5}{9} - \frac{1}{2} = \frac{10}{18} - \frac{9}{18}$
   $= \frac{1}{18}$

   Ellen had $\frac{1}{18}$ pound of flour left.

5. $\frac{7}{9} + \frac{3}{5} = \frac{35}{45} + \frac{27}{45}$
   $= \frac{62}{45}$
   $= 1\frac{17}{45}$

   Mr. Hayes sold $1\frac{17}{45}$ crates of grapefruit in all.

6. $2\frac{3}{4} - 1\frac{2}{7} = 2\frac{21}{28} - 1\frac{8}{28}$
   $= 1\frac{13}{28}$

   Latoya had $1\frac{13}{28}$ liters of water left.

7. a. $\frac{5}{8} + \frac{1}{4} = \frac{5}{8} + \frac{2}{8}$
   $= \frac{7}{8}$

   Sam jogged $\frac{7}{8}$ mile before stopping.

   b. $2\frac{1}{5} - \frac{5}{8} = 2\frac{8}{40} - \frac{25}{40}$
   $= 1\frac{48}{40} - \frac{25}{40}$
   $= 1\frac{23}{40}$

   Jose jogged $1\frac{23}{40}$ miles after resting.

8. a. $\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{4}{6}$
   $= \frac{1}{6}$

   Sharon took $\frac{1}{6}$ hour more.

   b. $\frac{5}{6} + \frac{2}{3} = \frac{5}{6} + \frac{4}{6}$
   $= \frac{9}{6}$
   $= 1\frac{1}{2}$

   She spent $1\frac{1}{2}$ hours on her homework altogether.

9. a. $\frac{1}{6} + \frac{1}{4} = \frac{4}{24} + \frac{6}{24}$
   $= \frac{10}{24}$
   $= \frac{5}{12}$

   $\frac{5}{12}$ of Jana's leisure time was spent reading.

   b. $1 - \frac{5}{12} - \frac{1}{6} = \frac{12}{12} - \frac{5}{12} - \frac{2}{12}$
   $= \frac{5}{12}$

   $\frac{5}{12}$ of her leisure time was spent exercising.

10. a. $1\frac{1}{4} + 1\frac{3}{8} = 1\frac{2}{8} + 1\frac{3}{8}$
    $= 2\frac{5}{8}$

    The shopkeeper sold $2\frac{5}{8}$ kilograms of onions altogether.

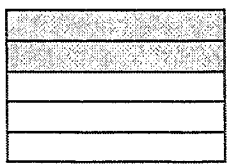
    b. $3\frac{1}{2} - 2\frac{5}{8} = 3\frac{4}{8} - 2\frac{5}{8}$
    $= 2\frac{12}{8} - 2\frac{5}{8}$
    $= \frac{7}{8}$

    He had $\frac{7}{8}$ kilogram of onions left.

Chapter 4

Worksheet 1

1. **Step 1**



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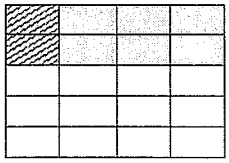
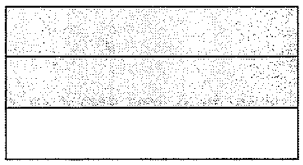
Step 2



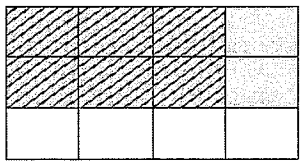
$\boxed{\frac{1}{10}}$ of the rectangle has stripes drawn over the shaded portion.

$\frac{1}{4}$ of $\frac{2}{5}$ is $\boxed{\frac{1}{10}}$.

2. **Step 1**



Step 2



$\boxed{\frac{1}{2}}$ of the rectangle has stripes drawn over the shaded portion.

$\frac{3}{4}$ of $\frac{2}{3}$ is $\boxed{\frac{1}{2}}$.

3. $\boxed{\frac{1}{5}} \times \boxed{\frac{2}{3}}$

4. $\boxed{\frac{1}{3}} \otimes \boxed{\frac{7}{8}}$

5. $\boxed{\frac{1}{4}} \otimes \boxed{\frac{5}{9}}$

6. $\boxed{\frac{3}{4}}$ of $\boxed{\frac{7}{12}}$

7. of

8. $\boxed{\frac{2}{5}}$ of $\boxed{\frac{1}{6}}$

9. $\dfrac{\boxed{3} \times \boxed{5}}{\boxed{4} \times \boxed{7}} = \dfrac{\boxed{15}}{\boxed{28}}$

10. $\dfrac{\boxed{2} \times \boxed{2}}{\boxed{5} \times \boxed{9}} = \dfrac{\boxed{4}}{\boxed{45}}$

11. $\dfrac{\boxed{5} \times \boxed{1}}{\boxed{6} \times \boxed{3}} = \dfrac{\boxed{5}}{\boxed{18}}$

12. $\frac{1}{2} \times \frac{4}{5} = \dfrac{\boxed{1} \times \boxed{2}}{\boxed{1} \times \boxed{5}} = \dfrac{\boxed{2}}{\boxed{5}}$

13. $\frac{2}{5} \times \frac{3}{8} = \dfrac{\boxed{1} \times \boxed{3}}{\boxed{5} \times \boxed{4}} = \dfrac{\boxed{3}}{\boxed{20}}$

14. $\frac{3}{4} \times \frac{7}{12} = \dfrac{\boxed{1} \times \boxed{7}}{\boxed{4} \times \boxed{4}} = \dfrac{\boxed{7}}{\boxed{16}}$

15. $\frac{3}{4} \times \frac{8}{9} = \dfrac{\boxed{1} \times \boxed{2}}{\boxed{1} \times \boxed{3}} = \dfrac{\boxed{2}}{\boxed{3}}$

16. $\frac{1}{6} \times \frac{8}{9} = \frac{1 \times 4}{3 \times 9} = \frac{4}{27}$

17. $\frac{1}{3} \times \frac{6}{7} = \frac{1 \times 2}{1 \times 7} = \frac{2}{7}$

18. $\frac{4}{9} \times \frac{7}{12} = \frac{1 \times 7}{9 \times 3} = \frac{7}{27}$

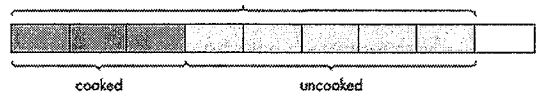
19. $\frac{3}{5} \times \frac{11}{12} = \frac{1 \times 11}{5 \times 4} = \frac{11}{20}$

20. $\frac{4}{7} \times \frac{5}{12} = \frac{1 \times 5}{7 \times 3} = \frac{5}{21}$

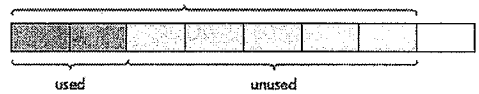
21. $\frac{3}{4} \times \frac{2}{3} = \frac{1 \times 1}{2 \times 1} = \frac{1}{2}$

Worksheet 2

1. $\boxed{\frac{8}{9}}$ pound



2. $\frac{7}{8}$ meter



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3. a. 7 units → $\frac{1}{\underline{\quad}}$ cup

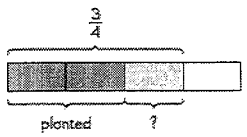
1 unit → $\frac{1}{7}$ cup

She drank $\frac{1}{7}$ cup of milk.

b. 4 units → $\frac{4}{7}$ cup

$\frac{4}{7}$ cup of milk was left.

4. a.



3 units → $\frac{3}{4}$

1 unit → $\frac{1}{4}$

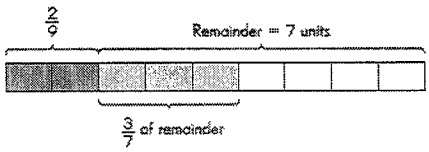
2 units → $\frac{1}{2}$

He planted $\frac{1}{2}$ of a bag of seeds.

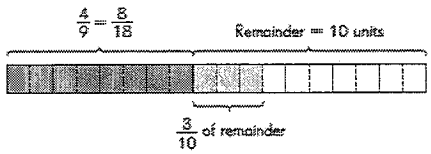
b. 1 unit → $\frac{1}{4}$

$\frac{1}{4}$ of a bag of seeds was left.

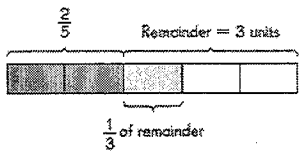
5.



6.



7. a.



2 units → $\frac{2}{5}$

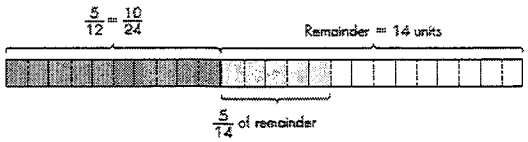
1 unit → $\frac{1}{5}$

$\frac{1}{5}$ of Mike's fish are damselfish.

b. 2 units → $\frac{2}{5}$

$\frac{2}{5}$ of his fish are not clownfish or damselfish.

8.



a. 10 units → $\frac{5}{12} = \frac{10}{24}$

1 unit → $\frac{1}{24}$

5 units → $\frac{5}{24}$

$\frac{5}{24}$ of Lilian's stickers are flower stickers.

b. 9 units → $\frac{9}{24} = \frac{3}{8}$

$\frac{3}{8}$ of her stickers are not animal or flower stickers.

9. $\frac{1}{2} \times \frac{7}{8} = \frac{7}{16}$

Zach and his dog spent $\frac{7}{16}$ hour at the beach.

10. $1 - \frac{5}{9} = \frac{4}{9}$

$\frac{3}{4} \times \frac{4}{9} = \frac{1}{3}$

Mrs. Jenkins used $\frac{1}{3}$ of the tomatoes to make the salad.

Worksheet 3

1. $\frac{9}{4}$

2. $\frac{9}{2}$

$27 \div \underline{3} = \underline{9}$
$6 \div \underline{3} = \underline{2}$

3. $\frac{7}{4}$

$42 \div \underline{6} = \underline{7}$
$24 \div \underline{6} = \underline{4}$

4. $\frac{7}{4}$

$56 \div \underline{8} = \underline{7}$
$32 \div \underline{8} = \underline{4}$

5. $\frac{1}{2} \times \frac{8}{7} = \frac{\boxed{1} \times \boxed{4}}{\boxed{1} \times \boxed{7}} = \frac{\boxed{4}}{\boxed{7}}$

6. $\frac{5}{4} \times \frac{3}{20} = \frac{\boxed{1} \times \boxed{3}}{\boxed{4} \times \boxed{4}} = \frac{\boxed{3}}{\boxed{16}}$

7. $\frac{5}{4} \times \frac{16}{3} = \frac{5 \times 4}{1 \times 3} = \frac{20}{3} = 6\frac{2}{3}$

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8. $\frac{5}{4} \times \frac{12}{13} = \frac{5 \times 3}{1 \times 13} = \frac{15}{13} = 1\frac{2}{13}$

9. $\frac{7}{8} \times \frac{12}{7} = \frac{1 \times 3}{2 \times 1} = \frac{3}{2} = 1\frac{1}{2}$

10. $\frac{14}{9} \times \frac{18}{7} = \frac{2 \times 2}{1 \times 1} = 4$

Worksheet 4

1. $\frac{17}{5}$

2. $\frac{25}{9}$

3. $\frac{12}{5}$

4. $\frac{45}{4}$

5. $\frac{12}{5} = \frac{10}{5} + \frac{2}{5}$

$= \boxed{2} + \boxed{\frac{2}{5}} = \boxed{2\frac{2}{5}}$

6. $\frac{15}{8} = \boxed{\frac{8}{8}} + \boxed{\frac{7}{8}}$

$= \boxed{1} + \boxed{\frac{7}{8}}$

$= \boxed{1\frac{7}{8}}$

7. $\frac{9}{2} = \boxed{4}\,\boxed{\frac{1}{2}}$

8.
$$\begin{array}{r} \boxed{3} \\ 3\overline{)\,1\quad 0} \\ \boxed{9} \\ \hline \boxed{1} \end{array}$$

Quotient = 3 Remainder = 1

$\frac{10}{3} = \boxed{3}\,\boxed{\frac{1}{3}}$

9.
$$\begin{array}{r} \boxed{3} \\ 4\overline{)\,1\quad 3} \\ \boxed{1}\ \boxed{2} \\ \hline \boxed{1} \end{array}$$

Quotient = 3 Remainder = 1

$\frac{13}{4} = \boxed{3}\,\boxed{\frac{1}{4}}$

10.
$$\begin{array}{r} \boxed{5} \\ 5\overline{)\,2\quad 8} \\ \boxed{2}\ \boxed{5} \\ \hline \boxed{3} \end{array}$$

Quotient = 5 Remainder = 3

$\frac{28}{5} = \boxed{5}\,\boxed{\frac{3}{5}}$

11. $4\frac{2}{5} \times 3 = \boxed{\frac{22}{5}} \times 3$

$= \boxed{\frac{66}{5}}$

$= \boxed{13}\,\boxed{\frac{1}{5}}$

12. $5\frac{1}{3} \times 4 = \boxed{\frac{16}{3}} \times 4$

$= \boxed{\frac{64}{3}}$

$= \boxed{21}\,\boxed{\frac{1}{3}}$

13. $2\frac{8}{13} \times 2 = \frac{34}{13} \times 2$

$= \frac{68}{13}$

$= 5\frac{3}{13}$

14. $8 \times 2\frac{4}{7} = 8 \times \frac{18}{7}$

$= \frac{144}{7}$

$= 20\frac{4}{7}$

15. $9 \times 4\frac{3}{4} = 9 \times \frac{19}{4}$

$= \frac{171}{4}$

$= 42\frac{3}{4}$

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16. $7\frac{2}{5} \times 10 = \frac{37}{5} \times 10$

$= \frac{370}{5}$

$= 74$

Worksheet 5

1. $\underline{8} \times 1\frac{1}{4} = \underline{10}$

Juan needs $\underline{10}$ carrots.

2. $7 \times 13\frac{1}{2} = 94\frac{1}{2}$

The total weight of the cornflakes is $94\frac{1}{2}$ ounces.

3. $8 \times 4\frac{1}{3} = 34\frac{2}{3}$

The area of the envelope is $34\frac{2}{3}$ square inches.

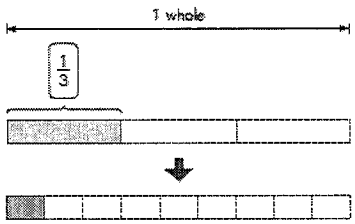
4. $4 \times 3\frac{2}{5} = 13\frac{3}{5}$

$13\frac{3}{5} \times 8 = 108\frac{4}{5} = 108.8$

The carpenter paid \$108.80 for the nails.

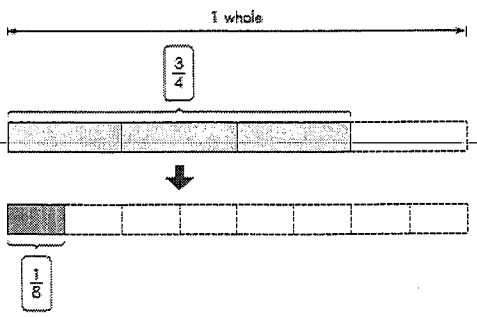
Worksheet 6

1.



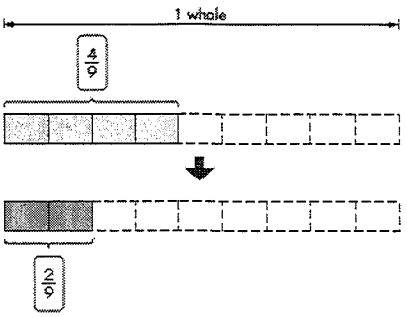
$\frac{1}{3} \div 3 = \frac{1}{9}$

2.



$\frac{3}{4} \div 6 = \frac{1}{8}$

3.



$\frac{4}{9} \div 2 = \frac{2}{9}$

4. $\frac{7}{8} \div 5 = \frac{1}{5}$ of $\frac{7}{8}$

$= \frac{1}{5} \times \frac{7}{8}$

$= \frac{7}{40}$

5. $\frac{8}{9} \div 4 = \frac{1}{4}$ of $\frac{8}{9}$

$= \frac{1}{4} \times \frac{8}{9}$

$= \frac{8}{36} = \frac{2}{9}$

6. $\frac{5}{12} \div 8 = \frac{1}{8}$ of $\frac{5}{12}$

$= \frac{1}{8} \times \frac{5}{12}$

$= \frac{5}{96}$

7. $\frac{2}{3} \div 6 = \frac{2}{3} \times \frac{1}{6}$

$= \frac{2}{18}$

$= \frac{1}{9}$

8. $\frac{7}{8} \div 9 = \frac{7}{8} \times \frac{1}{9}$

$= \frac{7}{72}$

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9. $\frac{4}{9} \div 8 = \frac{4}{9} \times \frac{1}{8}$

$= \frac{4}{72}$

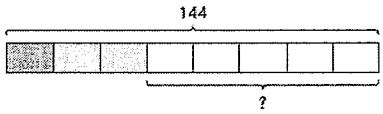
$= \frac{1}{18}$

10. $\frac{9}{11} \div 3 = \frac{9}{11} \times \frac{1}{3}$

$= \frac{9}{33}$

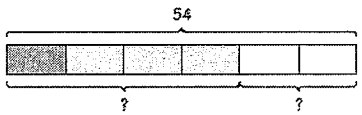
$= \frac{3}{11}$

Worksheet 7

1. a. 

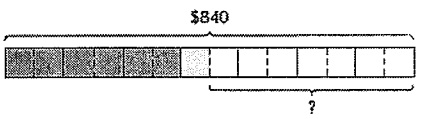
8 units → 144
1 unit → 18
5 units → 90
There are 90 oranges altogether.

b. $\frac{5}{8}$ of the fruits are oranges.

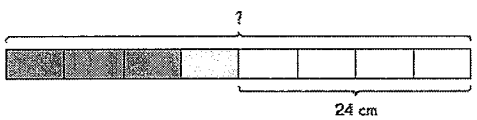
2. a. 

6 units → 54
1 unit → 9
4 units → 36
36 buns were sold altogether.

b. 2 units → 18
18 buns were not sold.

3. 

14 units → $840
1 unit → $60
7 units → $420
Mr. Woods had $420 left.

4. 

4 units → 24 cm
1 unit → 6 cm
8 units → 48 cm
Rebecca had 48 centimeters of ribbon at first.

Chapter 5

Worksheet 1

1. 8
2. 4
3. 15
4. 5
5. $x + 2$
6. $7 - y$
7. $t + 12$
8. $s - 9$
9.

Child	Present age	5 years ago	3 years from now	10 years from now
Tim	8	**3**	**11**	**18**
Ken	x	$x - 5$	$x + 3$	$x + 10$
Sid	y	$y - 5$	$y + 3$	$y + 10$

10.

Child	Present age	x years ago	t years from now	y years from now
Tara	8	$8 - x$	$8 + t$	$8 + y$
May	13	$13 - x$	$13 + t$	$13 + y$

11.

Expression	Value of the expression	
	$x = 3$	$x = 15$
$x + 9$	12	**24**
$7 + x$	**10**	**22**
$x - 2$	**1**	**13**

12. 4
13. 5
14. 4
15. $3h$
16. $\frac{5}{t}$
17. $\frac{f}{2}$
18. $2b$

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19.

Number of Bags	Total Number of Socks
1	m
4	$\mathbf{4m}$
7	$\mathbf{7m}$

20.

Number of Children	Number of Crayons Each Child Gets
3	$\frac{g}{3}$
6	$\mathbf{\frac{g}{6}}$
10	$\mathbf{\frac{g}{10}}$

21. $4 + n = 4 + 24$

22. $32 - n = 32 - 24$

23. $5n = 5 \times 24$

24. $\frac{2}{n} = 2 \div 24$

25.

Child	Present age	4 years ago	3 years from now	10 years from now
Faye	$5t$	$5t - 4$	$\mathbf{5t + 3}$	$\mathbf{5t + 10}$
Elijah	$10u$	$\mathbf{10u - 4}$	$\mathbf{10u + 3}$	$\mathbf{10u + 10}$

26.

Expression	Value of the expression	
	$x = 3$	$x = 15$
$4x$	**12**	**60**
$\frac{x}{3}$	**1**	**5**
$3x - 5$	**4**	**40**
$\frac{5x}{6}$	$\mathbf{\frac{15}{6} = \frac{5}{2}}$	$\mathbf{\frac{75}{6} = \frac{25}{2}}$
$\frac{20 - x}{2}$	$\mathbf{\frac{17}{2}}$	$\mathbf{\frac{5}{2}}$

Worksheet 2

1. 3
2. 6
3. 5
4. 3
5. y
6. s
7. 7
8. p; p; p

9. w; w; w; w; w; w; w; w
10. $2b + 5b$
11. $5w + 4w$
12. $2y + 3y + 5y$
13. $2z + 5z + z$
14. $4b + 3b = \underline{7b}$
    $\underline{7b} - \underline{4b} = 3b$
15. $\underline{5p} + \underline{7p} = \underline{12p}$
    $\underline{12p} - \underline{5p} = 7p$
16. $\underline{5y} + \underline{3y} = \underline{8y}$
    $\underline{8y} - \underline{3y} = 5y$
17. $\underline{4m} + \underline{4m} = \underline{8m}$
    $\underline{8m} - \underline{4m} = 4m$
18. $7x$
19. $9y$
20. $5c$
21. $9d$
22. $20f$
23. 0
24. $9x - 3x - 2x = 6x - 2x$
    $= 4x$
25. $10b - 4b - 3b = 6b - 3b$
    $= 3b$
26. $6c + 7c + 3c = 13c + 3c$
    $= 16c$
27. $8d + 2d + 9d = 10d + 9d$
    $= 19d$
28. $15f + 8f - 4f = 23f - 4f$
    $= 19f$
29. $24g - 9g + 5g = 15g + 5g$
    $= 20g$
30. $3w + 5$
31. $19p + 9$
32. $14 + 5d$
33. $5k + 4$
34. $9 + 5f$
35. $9g + 12$
36. $7x + 4x = 11x$
    She walked a total of $11x$ kilometers.
37. $3h + 4 + 5h = 8h + 4$
    Mrs. Wilson bought $(8h + 4)$ hats in all.
38. $6x + 12 - 2x = 4x + 12$
    Mrs. King has $(4x + 12)$ eggs.

Worksheet 3

1. false
2. false
3. true
4. false
5. Answers vary. Samples: 3, 4, 5, 6, 7

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6. Answers vary. Samples: 1, 2, 3, 4, 5
7. Answers vary. Samples: 16, 17, 18, 19, 20
8. Answers vary. Samples: 32, 27, 22, 15, 9
9. $<$ 10. $>$
11. $=$ 12. $>$
13. $>$ 14. $=$
15. $6x - 3 = 6 \times 8 - 3$
$= 48 - 3$
$= \underline{45}$
16. $7y + 14 = 7 \times 12 + 14$
$= 84 + 14$
$= \underline{98}$
17. $3a - 2 = 3 \times 8 - 2$
$= 24 - 2$
$= 22$
$3a - 2 \textcircled{=} 22$
18. $5a + 4 = 5 \times 8 + 4$
$= 40 + 4$
$= 44$
$5a + 4 \textcircled{<} 45$
19. $6a + 8 = 6 \times 8 + 8$
$= 48 + 8$
$= 56$
$6a + 8 \textcircled{<} 65$
20. $9a - 12 = 9 \times 8 - 12$
$= 72 - 12$
$= 60$
$9a - 12 \textcircled{>} 58$
21. $7x = 28$
$7x \div 7 = 28 \div 7$
$x = 4$
22. $8x = 72$
$8x \div 8 = 72 \div 8$
$x = 9$
23. $6x + 12 = 60$
$6x + 12 - 12 = 60 - 12$
$6x = 48$
$6x \div 6 = 48 \div 6$
$x = 8$
24. $7x - 5 = 58$
$7x - 5 + 5 = 58 + 5$
$7x = 63$
$7x \div 7 = 63 \div 7$
$x = 9$
25. $8x + 24 = 48$
$8x + 24 - 24 = 48 - 24$
$8x = 24$
$8x \div 8 = 24 \div 8$
$x = 3$
26. $9x - 5 = 76$
$9x - 5 + 5 = 76 + 5$
$9x = 81$
$9x \div 9 = 81 \div 9$
$x = 9$

Worksheet 4

1. a. $4 \times y = 4y$
The box can hold $4y$ fruits.
b. $4 \times 8 = 32$
The box can hold 32 fruits.
2. a. Serena's height is $(127 + p)$ centimeters.
b. $127 + (127 + p) = 254 + p$
Their combined height is $(254 + p)$ centimeters.
c. $254 + 9 = 263$
Their combined height is 263 centimeters.
3. a. The cost of each notepad is $\$\frac{k - 8}{4}$.
b. $\frac{16 - 8}{4} = \frac{8}{4} = 2$
The cost of each notepad was \$2.
4. a. Number of stamps Bruce has
$= (2 \times 8) + 7$
$= 23$
Number of stamps Gregory has
$= (7 \times 8) - 35$
$= 21$
Bruce has 23 stamps and Gregory has 21 stamps.
b. Bruce has more stamps.
c. $23 - 21 = 2$
Gregory must buy 2 more stamps.

Chapter 6

Worksheet 1

1. $\overline{AB}$; $\overline{BC}$; $\overline{CA}$
2. $\overline{AB}$; $\overline{BC}$; $\overline{CA}$
3. $\overline{AB}$; $\overline{BC}$; $\overline{CA}$
4. $\overline{RQ}$ 5. $\overline{BD}$
6. $\overline{RS}$ 7. $\overline{CD}$
8. $\overline{MO}$ 9. $\overline{BD}$

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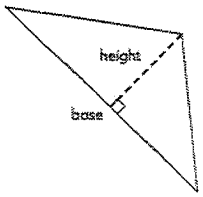
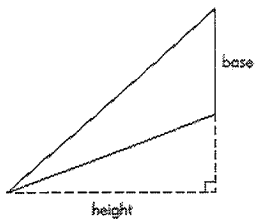
10. $\overline{FG}$ 11. $\overline{JL}$
12. $\overline{JK}$ 13. $\overline{QR}$
14. $\overline{XY}$ 15. $\overline{WY}$
16. a. $\overline{BC}$ b. $\overline{AC}$ c. $\overline{AB}$
17.



18.



Worksheet 2

1. Length = 7 cm
   Width = 5 cm
   Area = 7 × 5 = 35 cm²
2. Length = 9 in.
   Width = 6 in.
   Area = 9 × 6 = 54 in.²
3. 2 × 28 = 56 m²
4. 2 × 12 = 24 ft²
5. 2 × 16 = 32 in.²
6. Area of rectangle $ABCD$ = 8 × 3
   = 24 yd²
   Area of triangle ACD = $\frac{1}{2}$ × 24
   = 12 yd²
7. Area of rectangle $ABCD$ = 9 × 4
   = 36 m²
   Area of triangle BCD = $\frac{1}{2}$ × 36
   = 18 m²
8. Base = 6 in.
   Height = 2 in.
   Area of triangle ACD = $\frac{1}{2}$ × 6 × 2
   = 6 in.²
9. Base = 16 cm
   Height = 7 cm
   Area of triangle ABC = $\frac{1}{2}$ × 16 × 7
   = 56 cm²
10. Area of triangle ABC = $\frac{1}{2}$ × 16 × 10
    = 80 in.²
11. Area of triangle PQR = $\frac{1}{2}$ × 24 × 12
    = 144 m²
12. Area of large triangle = $\frac{1}{2}$ × 9 × 18
    = 81 cm²
    Area of small triangle = $\frac{1}{2}$ × 9 × 9
    = $40\frac{1}{2}$ cm²
    Area of shaded part = 81 + $40\frac{1}{2}$
    = $121\frac{1}{2}$ cm²

Chapter 7

Worksheet 1

1. 7 2. 7
3. 12 4. 13
5. 5 6. 17
7. 3 : 4 8. 2 : 5
9. 4 : 2 10. 5 : 3
11. 15 : 11 12. 11 : 15
13. 4 : 9 14. 9 : 4
15. 3 : 7 16. 7 : 4
17. 4 : 3
18. a. The ratio of the number of quarters Sam has to the number of quarters John has is 52 : 17.
    b. The ratio of the number of quarters John has to the number of quarters Gil has is 17 : 24.
19. a. 27 − 8 = 19
    She had 19 pencils left.
    b. The ratio is 27 : 19.

Worksheet 2

1. 6 : 18 2. 6 : 18
3. 2 : 6 4. 1 : 3
5. 1 : 3; 2 : 6; 6 : 18
6. 1 : 3
7. Factors of 20 : 1, 2, 4, 5, 10, 20
   Factors of 15 : 1, 3, 5, 15
   The greatest common factor of 20 and 15 is 5.

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8. Factors of 8 : 1, 2, 4, 8
Factors of 36 : 1, 2, 3, 4, 6, 9, 12, 18, 36
The greatest common factor of 8 and 36 is 4.

9. $3 : 12$
$\div 3$ $\quad$ $\div 3$
$= 1 : 4$

10. $28 : 16$
$\div 4$ $\quad$ $\div 4$
$= 7 : 4$

11. $8 : 6$
$\div 2$ $\quad$ $\div 2$
$= 4 : 3$

12. $12 : 20$
$\div 4$ $\quad$ $\div 4$
$= 3 : 5$

13. 3 : 5
14. 7 : 9
15. 3 : 7
16. 2 : 5
17. 7
18. 3
19. 7
20. 7
21. 4
22. 7
23. 12 : 15
24. 12 : 32
25. 25 : 35

26. $6 : 5$
$\times 4$ $\quad$ $\times 4$
$= 24 : 20$

27. $5 : 8$
$\times 3$ $\quad$ $\times 3$
$= 15 : 24$

28. $7 : 9$
$\times 3$ $\quad$ $\times 3$
$= 21 : 27$

29. 8
30. 63
31. 48
32. 72
33. 2
34. 5
35. 9
36. 2

Worksheet 3

1. a. $40 - 12 = 28$
28 student volunteers are girls.
b. $12 : 28 = 3 : 7$
The ratio of the number of boys to the number of girls is 3 : 7.

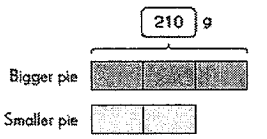
2. a. $48 - 16 = 32$
She bought 32 potatoes.
b. $16 : 32 = 1 : 2$
The ratio of the number of carrots to the number of potatoes is 1 : 2.

3. Number of boys : Number of girls
$= 2 : 3$
$\times 6$ $\quad$ $\times 6$
$= 12 : 18$
12 boys are in the club.

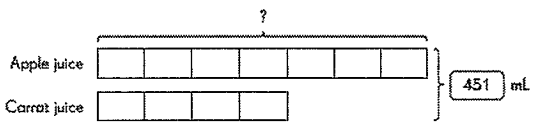
4. $3 : 5 = 21 : 35$
The weight of the wheat flour is 35 pounds.

5. $5 : 8 = 20 : 32$
Fiona used 20 liters of mango syrup.

Worksheet 4

1. 

3 units → 210 g
1 unit → 210 ÷ 3 = 70 g
2 units → 2 × 70 = 140 g
The mass of the smaller pie is 140 g.

2. 

11 units → 451 mL
1 unit → 451 ÷ 11 = 41 mL
7 units → 7 × 41 = 287 mL
Kim used 287 milliliters of apple juice.

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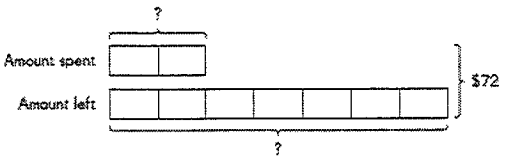
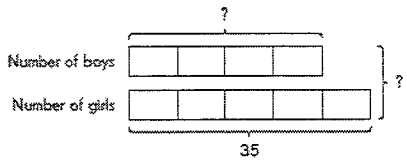
3. a.



9 units → $72
1 unit → $72 ÷ 9 = $8
7 units → 7 × $8 = $56
Sunita has $56 left.

b. 2 units → 2 × $8 = $16
She spent $16.

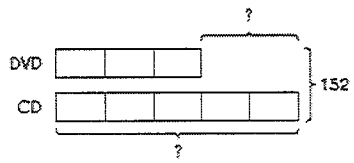
4. a.



5 units → 35
1 unit → 35 ÷ 5 = 7
4 units → 4 × 7 = 28
28 boys went on the field trip.

b. 9 units → 9 × 7 = 63
63 students went on the field trip.

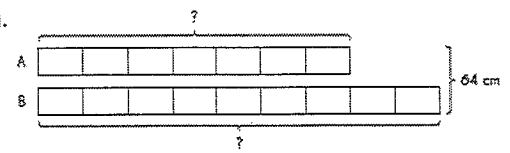
5. a.



8 units → 152
1 unit → 152 ÷ 8 = 19
5 units → 5 × 19 = 95
Sunny has 95 CDs.

b. 2 units → 2 × 19 = 38
He has 38 more CDs than DVDs.

6. a.

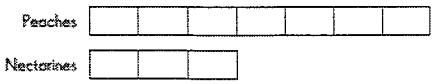


16 units → 64 cm
1 unit → 64 ÷ 16 = 4 cm
7 units → 7 × 4 = 28 cm
9 units → 9 × 4 = 36 cm
Square A's perimeter is 28 centimeters.
Square B's perimeter is 36 centimeters.

b. 28 ÷ 4 = 7
7 × 7 = 49
The area of the smaller square is 49 square centimeters.

Worksheet 5

1. $\frac{7}{4}$
2. $\frac{7}{4}$
3. $\frac{5}{9}$
4. $\frac{5}{9}$
5. $\frac{9}{5}$
6. $\frac{9}{14}$
7. $\frac{9}{14}$
8. a.



The ratio of the number of peaches to the number of nectarines is $\frac{7}{3}$.

b. The ratio of the number of peaches to the total number of peaches and nectarines is $\frac{7}{10}$.

c. The total number of peaches and nectarines is $\frac{10}{3}$ times the number of nectarines.

9.

a. The ratio of Drew's age to Joe's age is $\frac{1}{2}$.

b. The ratio of Drew's age to their combined age is $\frac{1}{3}$.

c. Joe's age is 2 times Drew's age.

Worksheet 6

1. 6 : 3 : 4
2. 8 : 6 : 21
3. 14 : 4 : 6
   ÷ 2 ÷ 2 ÷ 2
   = 7 : 2 : 3
4. 16 : 12 : 8
   ÷ 2 ÷ 2 ÷ 2
   = 8 : 6 : 4
5. 16 : 12 : 8
   ÷ 4 ÷ 4 ÷ 4
   = 4 : 3 : 2

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6. 1 : 5 : 2
×5 ×5 ×5
= 5 : 25 : 10

7. 3 : 5 : 7
×3 ×3 ×3
= 9 : 15 : 21

8. 2
9. 12; 21
10. 6; 24
11. 5; 8
12. 3; 9
13. 3; 7
14. 12 : 15 : 24 = 4 : 5 : 8
The ratio of the number of plates of baked rice sold to the number of plates of pasta sold to the number of plates of salad sold is 4 : 5 : 8.
15. a. 32 : 22 : 12 = 16 : 11 : 6
The ratio of the number of oranges sold to the number of apples sold to the number of cantaloupes sold is 16 : 11 : 6.
b. 22 : 16 : 32 = 11 : 8 : 16
The ratio of the number of apples sold to the number of pears sold to the number of oranges sold is 11 : 8 : 16.
c. 32 + 22 = 54
12 + 16 = 28
54 : 28 = 27 : 14
The ratio of the total number of oranges and apples sold to the total number of cantaloupes and pears sold is 27 : 14.

Worksheet 7

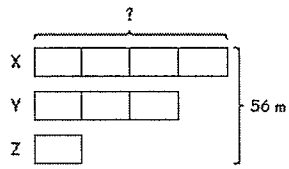
1. a. 6 − 2 = 4
4 liters of cooking oil are in bottle B.
b. 12 − 4 − 6 = 2
2 liters of cooking oil are in bottle C.
c. 6 : 4 : 2 = 3 : 2 : 1
The ratio of the volume of cooking oil in bottle A to the volume of cooking oil in bottle B to the volume of cooking oil in bottle C is 3 : 2 : 1.
2. a. 12 + 3 = 15
The length of the second stick is 15 inches.
b. 42 − 15 − 12 = 15
The length of the third stick is 15 inches.
c. 12 : 15 : 15 = 4 : 5 : 5
The ratio of the length of the first stick to the length of the second stick to the length of the third stick is 4 : 5 : 5.

3. **Method 1**
3 : 2 : 4
×2 ×2 ×2
= 6 : 4 : 8
Aiesha slept for 8 hours.

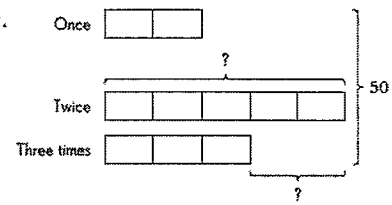
Method 2
3 units → 6 hours
1 unit → 6 ÷ 3 = 2 hours
4 units → 4 × 2 = 8 hours
Aiesha slept for 8 hours.

4. **Method 1**
4 : 1 : 2
×9 ×9 ×9
= 36 : 9 : 18
The length of ribbon Z is 18 centimeters.

Method 2
4 units → 36 cm
1 unit → 36 ÷ 4 = 9 cm
2 units → 2 × 9 = 18 cm
The length of ribbon Z is 18 centimeters.

5. 

8 units → 56 meters
1 unit → 56 ÷ 8 = 7 meters
4 units → 4 × 7 = 28 meters
The length of the longest piece of fabric is 28 meters.

6. a. 

10 units → 50
1 unit → 50 ÷ 10 = 5
5 units → 5 × 5 = 25
25 people exercise twice a week.
b. 2 units → 2 × 5 = 10 people
There are 10 fewer people who exercise three times a week.

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