

# Math in FOCUS™

The Singapore Approach

## Extra Practice

5A

Author

Bernice Lau Pui Wah

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Customer Service Hotline: (65) 6411 0820

E-mail: [tmesales@sg.marshallcavendish.com](mailto:tmesales@sg.marshallcavendish.com)

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

CHAPTER  
**1**

# Whole Numbers

## Lesson 1.1 Numbers to 10,000,000

Fill in the table headings. Write *Tens*, *Hundreds*, *Ten Thousands*, or *Hundred Thousands*. Then write the number in word form and in standard form.

1.

		Thousands			Ones
● ● ●	● ● ● ● ●	● ● ● ● ● ●	● ● ● ●		●

a. The number in word form is

\_\_\_\_\_

\_\_\_\_\_

b. The number in standard form is \_\_\_\_\_

Write each number in standard form.

2.	Twenty-eight thousand, one hundred ninety-nine	
3.	Ninety thousand, thirty-eight	
4.	Four hundred twelve thousand, six hundred three	
5.	Eight hundred thousand, five	
6.	Five hundred seven thousand, seven hundred	
7.	Six hundred thousand, six hundred	

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Write each number in word form.**

8. 50,680 \_\_\_\_\_  
\_\_\_\_\_

9. 255,430 \_\_\_\_\_  
\_\_\_\_\_

10. 199,303 \_\_\_\_\_  
\_\_\_\_\_

11. 872,900 \_\_\_\_\_  
\_\_\_\_\_

12. 305,072 \_\_\_\_\_  
\_\_\_\_\_

**Use all the digits given to form 6-digit whole numbers.  
Do not start with the digit 0.**

8	6	0	3	7	4
---	---	---	---	---	---

13. The least possible number: \_\_\_\_\_

14. The greatest possible number: \_\_\_\_\_

15. The least odd number: \_\_\_\_\_

16. The greatest odd number: \_\_\_\_\_

17. A number less than four hundred thousand: \_\_\_\_\_

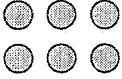







Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Fill in the table headings. Write *Tens, Hundreds, Ten Thousands, Hundred Thousands, or Millions*. Then write the number in word form and in standard form.**

**18.**

			Thousands			Ones
						

**a.** The number in word form is

\_\_\_\_\_

\_\_\_\_\_

**b.** The number in standard form is \_\_\_\_\_

**Write each number in standard form.**

<b>19.</b>	Nine million, two hundred seventy thousand, fifty	
<b>20.</b>	Six million, eighty-four thousand, one hundred one	
<b>21.</b>	Seven million, six thousand, eight hundred ninety-nine	
<b>22.</b>	Four million, five hundred two thousand, fifteen	
<b>23.</b>	Five million, fifty thousand, six hundred two	
<b>24.</b>	Eight million, four hundred thousand, eighty-five	
<b>25.</b>	Three million, seven hundred three	

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Write each number in word form.**

26. 8,808,429 \_\_\_\_\_  
\_\_\_\_\_

27. 3,002,566 \_\_\_\_\_  
\_\_\_\_\_

28. 5,970,103 \_\_\_\_\_  
\_\_\_\_\_

29. 2,050,060 \_\_\_\_\_  
\_\_\_\_\_

30. 4,700,900 \_\_\_\_\_  
\_\_\_\_\_

**Use all the digits given to form 7-digit whole numbers.  
Do not start with the digit 0.**

5	9	0	2	6	1	3
---	---	---	---	---	---	---

31. The least even number: \_\_\_\_\_

32. A number with 9 in the thousands place and 5 in the hundreds place:  
\_\_\_\_\_

33. A number greater than 2,000,000 but less than 5,000,000:  
\_\_\_\_\_

34. An even number greater than 6,000,000: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 1.2 Place Value

Write the value of each digit in the correct box.

1.

	9	2	5	0	3	8
<input type="text"/>	←					
<input type="text"/>	←					
<input type="text"/>	←					
<input type="text"/>	←					
<input type="text"/>	←					
<input type="text"/>	←					

**Complete.**

In 290,357:

- the digit 9 is in the \_\_\_\_\_ place.
- the value of the digit 9 is \_\_\_\_\_.
- the digit 9 stands for \_\_\_\_\_.

Write the place value of the digit 6 in each number.

	Number	Place Value
5.	263,148	
6.	312,685	
7.	609,453	

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Write the value of the digit 5 in each number.**

	Number	Value
8.	145,032	
9.	870,526	
10.	502,461	

**Fill in the blanks.**

11. In 980,541, the digit \_\_\_\_\_ is in the ten thousands place.

12. In 439,602, the digit 3 is in the \_\_\_\_\_ place.

13. In 750,482, the digit 7 is in the \_\_\_\_\_ place.

14. In 862,059, the digit 6 stands for \_\_\_\_\_.

It is in the \_\_\_\_\_ place.

15. In 423,086, the digit \_\_\_\_\_ is in the hundreds place.

Its value is \_\_\_\_\_.

**Fill in the blanks.**

16.  $314,562 = 300,000 + \underline{\hspace{2cm}} + 4,000 + 500 + 60 + 2$

17.  $790,258 = \underline{\hspace{2cm}} + 90,000 + 200 + 50 + 8$

18.  $804,576 = 800,000 + \underline{\hspace{2cm}} + 500 + 70 + 6$

19.  $200,000 + 4,000 + 800 + 90 + 1 = \underline{\hspace{2cm}}$

20.  $500,000 + 70,000 + 30 = \underline{\hspace{2cm}}$

21.  $300,000 + 6,000 + 10 = \underline{\hspace{2cm}}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Write the value of each digit in the correct box.**

**22.**

	7	8	0	3	5	2	4
--	---	---	---	---	---	---	---

	←
	←
	←
	←
	←
	←
	←
	←

**Fill in the blanks.**

**23.** In 8,963,750, the digit \_\_\_\_\_ is in the ten thousands place.

Its value is \_\_\_\_\_.

**24.** In 4,102,635, the digit 4 is in the \_\_\_\_\_ place.

**Fill in the blanks.**

**25.**  $5,903,780 = 5,000,000 + 900,000 + 3,000 + \underline{\hspace{2cm}}$

**26.**  $4,728,750 = 4,000,000 + \underline{\hspace{2cm}} + 700 + 50$

**27.**  $6,000,000 + 80,000 + 5,000 + 300 + 23 = \underline{\hspace{2cm}}$

**28.**  $2,000,000 + 700,000 + 500 + 8 = \underline{\hspace{2cm}}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Read the clues to find each number.**

- 29.** It is a 7-digit number.  
It has a digit 0.  
The greatest digit is in the hundred thousands place.  
The value of the digit 1 is 1,000,000.  
The digit 6 stands for 6,000.  
The value of the digit 5 is 5 ones.  
The digit 8 has a value greater than 700 but less than 1,000.  
The value of the digit 7 is 7 ten thousands.

The number is \_\_\_\_\_.

- 30.** It is a 6-digit number.  
The least digit is in the thousands place.  
The greatest digit is in the ones place.  
The digit in the tens place is 5 less than the digit in the ones place.  
The digit in the hundred thousands place is greater than the digit in the tens place but is less than 6.  
The digit in the ten thousands place is twice the digit in the tens place.  
The digit 2 stands for 200.

The number is \_\_\_\_\_.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 1.3 Comparing Numbers to 10,000,000

**Circle the greater number.**

1. 95,867 or 123,087
2. 625,689 or 625,897
3. 4,306,582 or 4,314,356

**Circle the least number.**

4. 32,409      320,409      32,049
5. 788,420      798,630      786,980      785,900      799,380
6. 5,468,015      5,648,015      5,478,015      5,475,216

**Arrange the numbers in order from least to greatest.**

7. 283,500      2,583,000      2,385,000      197,500      1,795,000
- 

8. 8,764,500      8,476,900      8,746,800      895,390      8,593,800
- 

**Arrange the numbers in order from greatest to least.**

9. 5,296,000      594,287      2,890,670      980,576      5,298,053
- 

10. 3,003,500      303,500      390,300      2,900,800      3,900,100
-

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**What is the next number in each pattern? Fill in the blanks.**

11. 476,270    477,270    478,270 ...

a. 477,270 is \_\_\_\_\_ more than 476,270.

b. 478,270 is \_\_\_\_\_ more than 477,270.

c. \_\_\_\_\_ more than 478,270 is \_\_\_\_\_.

d. The next number in the pattern is \_\_\_\_\_.

12. 4,500,000    4,480,000    4,460,000 ...

a. 4,480,000 is \_\_\_\_\_ less than 4,500,000.

b. 4,460,000 is \_\_\_\_\_ less than 4,480,000.

c. \_\_\_\_\_ less than 4,460,000 is \_\_\_\_\_.

d. The next number in the pattern is \_\_\_\_\_.

**Find the rule. Then complete each number pattern.**

13. 405,600    605,600    805,600    \_\_\_\_\_    \_\_\_\_\_

Rule: \_\_\_\_\_

14. 980,800    965,800    950,800    \_\_\_\_\_    \_\_\_\_\_

Rule: \_\_\_\_\_

15. 5,241,200    5,291,200    5,341,200    \_\_\_\_\_    \_\_\_\_\_

Rule: \_\_\_\_\_

16. 1,458,900    1,358,800    1,258,700    \_\_\_\_\_    \_\_\_\_\_

Rule: \_\_\_\_\_



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 1.4 Rounding and Estimating

**Round to the nearest thousand.**

1. 3,687 \_\_\_\_\_

2. 28,480 \_\_\_\_\_

3. 725,390 \_\_\_\_\_

4. 299,710 \_\_\_\_\_

**Round each number to the nearest thousand. Then estimate the sum or difference.**

5.  $9,867 + 4,655$

6.  $9,978 - 2,361$

**Estimate the sum or difference by using front-end estimation with adjustment.**

7.  $5,974 + 6,459$

8.  $3,999 - 2,499$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Round each 4-digit number to the nearest thousand. Then estimate each product.**

9.  $7,390 \times 8$

10.  $8,589 \times 9$

**Estimate the quotient. Give your answer to the nearest hundred.**

11.  $3,725 \div 4$

12.  $3,898 \div 8$

13.  $6,199 \div 7$

14.  $5,562 \div 9$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Solve.**

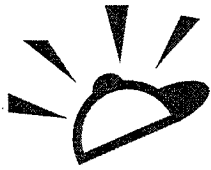
- 15.** On Saturday, 2,832 tourists visited the zoo.  
On Friday, 1,475 tourists visited the zoo.  
Estimate the number of tourists who visited the zoo on the two days by first rounding the numbers to the nearest thousand.

- 16.** A fireworks festival attracted a total of 4,342 visitors from Saturday to Friday.  
The number of visitors who went to the festival was about the same every day.  
Estimate the number of visitors who went to the festival on Monday.



Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Put on Your Thinking Cap!

**Complete each pattern.**

1. 150,000 155,000 165,000 180,000 \_\_\_\_\_ 225,000
2. 78,000 39,000 19,500 \_\_\_\_\_ 4,875
3. 15,000 30,000 90,000 360,000 \_\_\_\_\_ 10,800,000
4. 32,000 8,000 4,000 \_\_\_\_\_ 500 125
5. 12,000 36,000 18,000 54,000 \_\_\_\_\_ 81,000

**Solve.**

6. Karen opens a book and notes the page numbers of the facing pages. The product of the two numbers is 600. What are the page numbers of the facing pages?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**You are a Number Investigator. You have two cases for investigation.  
Find the numbers using the clues.**

**7. Case 1**

It is a 7-digit even number. There is no repetition of digits.  
The digit 5 is in the thousands place.  
The greatest digit is in the millions place.  
The digit in the hundred thousands place is twice the digit in the hundreds place.  
The digit in the hundreds place is twice the digit in the ones place.  
The digit in the tens place is 2 less than the digit in the millions place.  
The value of the digit in the ten thousands place is zero.

The number is \_\_\_\_\_.

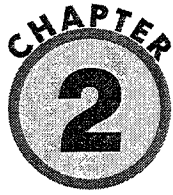
**8. Case 2**

It is a 6-digit number. There is no repetition of digits.  
It is divisible by 5 and is more than 300,000.  
The digit in the hundreds place is 3 more than the digit in the ones place.  
The digit in the ten thousands place is 3 times the digit in the hundred thousands place.  
The digit in the thousands place is half the value of the digit in the hundreds place.  
The difference between the digits in the tens place and in the thousands place is 2.

The number is \_\_\_\_\_.

Name: \_\_\_\_\_

Date: \_\_\_\_\_



# Whole Number Multiplication and Division

## Lesson 2.1 Using a Calculator

Use your calculator in this lesson.

**Add.**

1.  $3,857 + 2,684 =$  \_\_\_\_\_

2.  $5,729 + 2,865 =$  \_\_\_\_\_

3.  $1,898 + 4,573 =$  \_\_\_\_\_

4.  $2,948 + 4,676 =$  \_\_\_\_\_

**Subtract.**

5.  $4,216 - 1,678 =$  \_\_\_\_\_

6.  $5,042 - 1,857 =$  \_\_\_\_\_

7.  $26,111 - 12,935 =$  \_\_\_\_\_

8.  $108,123 - 15,987 =$  \_\_\_\_\_

**Multiply.**

9.  $268 \times 94 =$  \_\_\_\_\_

10.  $479 \times 58 =$  \_\_\_\_\_

11.  $1,579 \times 48 =$  \_\_\_\_\_

12.  $36,450 \times 28 =$  \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Divide.**

13.  $6,356 \div 7 =$  \_\_\_\_\_

14.  $6,344 \div 8 =$  \_\_\_\_\_

15.  $2,632 \div 47 =$  \_\_\_\_\_

16.  $5,796 \div 69 =$  \_\_\_\_\_

17.  $15,696 \div 36 =$  \_\_\_\_\_

18.  $322,077 \div 98 =$  \_\_\_\_\_

**Use your calculator to solve this question.**

19. **Step 1** Write any whole number between 100 and 999.  
**Step 2** Multiply the number by 11.  
**Step 3** Then multiply the product by 91.

Repeat the three steps by choosing another number in Step 1.  
What do you notice about the answers?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 2.2 Multiplying by Tens, Hundreds or Thousands

### Multiply.

1.  $38 \times 10 =$  \_\_\_\_\_

2.  $746 \times 10 =$  \_\_\_\_\_

3.  $624 \times 10 =$  \_\_\_\_\_

4.  $857 \times 10 =$  \_\_\_\_\_

5.  $758 \times 10 =$  \_\_\_\_\_

6.  $680 \times 10 =$  \_\_\_\_\_

### Find the missing factors.

7.  $681 \times$  \_\_\_\_\_  $= 6,810$

8. \_\_\_\_\_  $\times 10 = 1,900$

9.  $453 \times$  \_\_\_\_\_  $= 4,530$

10.  $1,905 \times$  \_\_\_\_\_  $= 19,050$

11. \_\_\_\_\_  $\times 10 = 64,000$

12. \_\_\_\_\_  $\times 10 = 808,000$

### Fill in the blanks.

13.  $56 \times 80 = (56 \times \text{_____}) \times 10$   
 $= \text{_____} \times 10$   
 $= \text{_____}$

14.  $756 \times 40 = (756 \times \text{_____}) \times 10$   
 $= \text{_____} \times 10$   
 $= \text{_____}$

15.  $680 \times 50 = (680 \times \text{_____}) \times 10$   
 $= \text{_____} \times 10$   
 $= \text{_____}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

16.  $857 \times 60 = (\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}) \times 10$   
 $= \underline{\hspace{2cm}} \times 10$   
 $= \underline{\hspace{2cm}}$

**Multiply.**

17.  $38 \times 40$

18.  $572 \times 80$

19.  $490 \times 30$

20.  $375 \times 70$

**Multiply.**

21.  $47 \times 100 = \underline{\hspace{2cm}}$

22.  $325 \times 100 = \underline{\hspace{2cm}}$

23.  $168 \times 100 = \underline{\hspace{2cm}}$

24.  $231 \times 1,000 = \underline{\hspace{2cm}}$

25.  $192 \times 1,000 = \underline{\hspace{2cm}}$

26.  $759 \times 1,000 = \underline{\hspace{2cm}}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Fill in the blanks.**

27.  $386 \times \underline{\hspace{2cm}} = 38,600$

28.  $\underline{\hspace{2cm}} \times 100 = 712,000$

29.  $623 \times \underline{\hspace{2cm}} = 623,000$

30.  $816 \times \underline{\hspace{2cm}} = 81,600$

31.  $\underline{\hspace{2cm}} \times 1,000 = 7,910,000$

32.  $\underline{\hspace{2cm}} \times 1,000 = 5,200,000$

**Fill in the blanks.**

33.  $24 \times 600 = (24 \times \underline{\hspace{2cm}}) \times 100$   
 $= \underline{\hspace{2cm}} \times 100$   
 $= \underline{\hspace{2cm}}$

34.  $108 \times 400 = (108 \times \underline{\hspace{2cm}}) \times 100$   
 $= \underline{\hspace{2cm}} \times 100$   
 $= \underline{\hspace{2cm}}$

35.  $160 \times 500 = (160 \times \underline{\hspace{2cm}}) \times 100$   
 $= \underline{\hspace{2cm}} \times 100$   
 $= \underline{\hspace{2cm}}$

36.  $37 \times 3,000 = (37 \times \underline{\hspace{2cm}}) \times 1,000$   
 $= \underline{\hspace{2cm}} \times 1,000$   
 $= \underline{\hspace{2cm}}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

37.  $103 \times 8,000 = (103 \times \underline{\hspace{2cm}}) \times 1,000$   
 $= \underline{\hspace{2cm}} \times 1,000$   
 $= \underline{\hspace{2cm}}$

38.  $325 \times 4,000 = (325 \times \underline{\hspace{2cm}}) \times 1,000$   
 $= \underline{\hspace{2cm}} \times 1,000$   
 $= \underline{\hspace{2cm}}$

**Multiply.**

39.  $209 \times 700$

40.  $146 \times 9,000$

**Round the 2-digit numbers to the nearest ten, the 3-digit numbers to the nearest hundred, and the 4-digit numbers to the nearest thousand. Then estimate the product.**

41.  $458 \times 87$  rounds to  $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

42.  $54 \times 349$  rounds to  $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

43.  $3,629 \times 512$  rounds to  $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

44.  $2,433 \times 651$  rounds to  $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Name: \_\_\_\_\_

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## Lesson 2.3 Multiplying by 2-digit Numbers

**Multiply. Estimate to check if your answers are reasonable.**

1.  $46 \times 80$

2.  $53 \times 90$

3.  $49 \times 46$

4.  $58 \times 52$

5.  $37 \times 63$

6.  $65 \times 47$

7.  $86 \times 43$

8.  $96 \times 84$

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**Multiply. Estimate to check if your answers are reasonable.**

9.  $763 \times 40$

10.  $370 \times 60$

11.  $495 \times 27$

12.  $856 \times 56$

13.  $1,268 \times 39$

14.  $1,046 \times 93$

15.  $1,203 \times 78$

16.  $3,108 \times 24$

Name: \_\_\_\_\_

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## Lesson 2.4 Dividing by Tens, Hundreds, or Thousands

Divide.

1.  $7,200 \div 10 =$  \_\_\_\_\_      2.  $2,800 \div 10 =$  \_\_\_\_\_

3.  $23,000 \div 10 =$  \_\_\_\_\_      4.  $680,000 \div 10 =$  \_\_\_\_\_

Fill in the blanks.

5.  $2,320 \div 10 =$  \_\_\_\_\_

6. \_\_\_\_\_  $\div 10 = 160$

7.  $24,000 \div$  \_\_\_\_\_  $= 2,400$

8.  $84,000 \div$  \_\_\_\_\_  $= 8,400$

9. \_\_\_\_\_  $\div 10 = 398$

10. \_\_\_\_\_  $\div 10 = 5,500$

Fill in the blanks.

11.  $9,300 \div 30 = (9,300 \div$  \_\_\_\_\_  $) \div 3$

$=$  \_\_\_\_\_  $\div 3$

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

12.  $9,500 \div 50 = (9,500 \div 10) \div$  \_\_\_\_\_

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

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

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Date: \_\_\_\_\_

13.  $126,000 \div 60 = (126,000 \div 10) \div$  \_\_\_\_\_  
= \_\_\_\_\_  $\div$  \_\_\_\_\_  
= \_\_\_\_\_

**Divide.**

14.  $60,000 \div 40$

15.  $372,000 \div 60$

16.  $486,000 \div 90$

17.  $267,400 \div 70$

**Divide.**

18.  $4,800 \div 100 =$  \_\_\_\_\_

19.  $35,700 \div 100 =$  \_\_\_\_\_

20.  $79,000 \div 1,000 =$  \_\_\_\_\_

21.  $350,000 \div 1,000 =$  \_\_\_\_\_



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**Fill in the blanks.**

22.  $19,200 \div 100 = \underline{\hspace{2cm}}$

23.  $\underline{\hspace{2cm}} \div 100 = 2,750$

24.  $77,000 \div \underline{\hspace{2cm}} = 770$

25.  $930,000 \div \underline{\hspace{2cm}} = 930$

26.  $\underline{\hspace{2cm}} \div 1,000 = 514$

27.  $\underline{\hspace{2cm}} \div 100 = 6,800$

**Fill in the blanks.**

28.  $13,500 \div 300 = (13,500 \div \underline{\hspace{2cm}}) \div 3$   
 $= \underline{\hspace{2cm}} \div 3$   
 $= \underline{\hspace{2cm}}$

29.  $85,000 \div 500 = (85,000 \div 100) \div \underline{\hspace{2cm}}$   
 $= \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$   
 $= \underline{\hspace{2cm}}$

30.  $840,000 \div 400 = (840,000 \div \underline{\hspace{2cm}}) \div 4$   
 $= \underline{\hspace{2cm}} \div 4$   
 $= \underline{\hspace{2cm}}$

31.  $924,000 \div 6,000 = (924,000 \div \underline{\hspace{2cm}}) \div 6$   
 $= \underline{\hspace{2cm}} \div 6$   
 $= \underline{\hspace{2cm}}$

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**32.**  $981,000 \div 9,000 = (981,000 \div 1,000) \div \underline{\hspace{2cm}}$   
 $= \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$   
 $= \underline{\hspace{2cm}}$

**33.**  $756,000 \div 7,000 = (756,000 \div \underline{\hspace{2cm}}) \div 7$   
 $= \underline{\hspace{2cm}} \div 7$   
 $= \underline{\hspace{2cm}}$

**34.**  $12,400 \div 400$

**35.**  $456,000 \div 3,000$

**Estimate each quotient.**

**36.**  $775 \div 42$  rounds to  $\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ .

**37.**  $6,599 \div 497$  rounds to  $\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ .

**38.**  $8,977 \div 298$  rounds to  $\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ .

**39.**  $4,090 \div 15$  rounds to  $\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ .

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## Lesson 2.5 Dividing by 2-digit Numbers

Divide.

1.  $80 \div 20$

2.  $100 \div 18$

3.  $130 \div 43$

4.  $620 \div 52$

5.  $198 \div 23$

6.  $240 \div 34$

7.  $624 \div 29$

8.  $831 \div 45$

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**Estimate the quotient. Then divide.**

**9.**  $3,160 \div 40$

**10.**  $3,250 \div 50$

**11.**  $2,566 \div 24$

**12.**  $3,129 \div 38$

**13.**  $4,163 \div 42$

**14.**  $1,986 \div 51$

**15.**  $1,300 \div 49$

**16.**  $1,170 \div 61$

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## Lesson 2.6 Order of Operations

Find the value of each expression. Record each step.

1.  $60 - 20 + 70 =$  \_\_\_\_\_

Step 1 \_\_\_\_\_

Step 2 \_\_\_\_\_

2.  $200 \div 5 \times 7 =$  \_\_\_\_\_

Step 1 \_\_\_\_\_

Step 2 \_\_\_\_\_

3.  $100 - 135 \div 3 + 27 =$  \_\_\_\_\_

Step 1 \_\_\_\_\_

Step 2 \_\_\_\_\_

Step 3 \_\_\_\_\_

4.  $80 + 108 \div 9 \times 10 =$  \_\_\_\_\_

Step 1 \_\_\_\_\_

Step 2 \_\_\_\_\_

Step 3 \_\_\_\_\_

5.  $42 \times 10 - 72 \div 8 =$  \_\_\_\_\_

Step 1 \_\_\_\_\_

Step 2 \_\_\_\_\_

Step 3 \_\_\_\_\_

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**Find the value of each expression. Record each step.**

6.  $90 \times (38 - 18) \div 100 =$  \_\_\_\_\_

**Step 1** \_\_\_\_\_

**Step 2** \_\_\_\_\_

**Step 3** \_\_\_\_\_

7.  $(100 - 80 \div 2) - 15 \times 4 =$  \_\_\_\_\_

**Step 1** \_\_\_\_\_

**Step 2** \_\_\_\_\_

**Step 3** \_\_\_\_\_

**Step 4** \_\_\_\_\_

**Find the value of each expression. State the order of operations.**

	Expression	Order
8.	$34 \times 3 \div 6 =$	$\times \div$
9.	$184 + 27 \times 3 =$	
10.	$100 - 68 + 37 \times 4 =$	
11.	$19 \times 4 + 84 \div 6 =$	
12.	$7 + 47 \times 8 \div 4 - 28 =$	
13.	$30 - (45 - 17) =$	
14.	$7 \times (14 + 26) \div 8 =$	
15.	$(73 + 27) - 136 \div 4 =$	

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## Lesson 2.7 Real-World Problems: Multiplication and Division (Part 1)

**Solve. Show your work.**

1. A fruit seller buys 1,456 apples and packs them equally into boxes of 56 each. He sells each box for \$18. How much money does he collect if he sells all the apples?

2. Mrs. Brandon had 230 soft toys. She kept 50 soft toys and distributed the rest equally to 15 children to sell for charity. Each toy was sold for \$20. How much money did each child collect?

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3. There are 641 boys and 490 girls in Greenland School. Each child makes 8 origami art pieces for classroom decorations. All the origami art pieces are then distributed equally among 58 classrooms. How many origami art pieces are in each classroom?

4. Tina collects 487 seashells and Wayne collects 345. After giving 40 seashells to Calvin, they put the remainder equally into 36 boxes. How many seashells are in each box?

5. The table shows the booking fee for a squash court in a community club.

From 9 a.m. to 5 p.m.	\$4 per hour
After 5 p.m.	\$7 per hour

Edwin booked a squash court from 4 p.m. to 8 p.m.  
How much did Edwin pay for the squash court?



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## Lesson 2.7 Real-World Problems: Multiplication and Division (Part 2)

**Solve. Show your work.**

- 1.** Three times as many children as adults attended a concert on Saturday. An adult's ticket cost \$7 and a child's ticket cost \$3. The theater collected a total of \$6,000. How many people bought tickets?
  
  
  
  
  
  
  
  
  
  
- 2.** Mrs. Daniel pays \$324 for a handbag and 3 pairs of shoes. The handbag costs half as much as the 3 pairs of shoes combined. Find the cost of the handbag.

Name: \_\_\_\_\_

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3. Mr. Jacob is 55 years old and Tony is 7 years old. In how many years will Mr. Jacob be 4 times as old as Tony?

4. The cost of 5 similar digital cameras and 3 similar video cameras is \$3,213. Each video camera costs 4 times as much as each digital camera. John buys a digital camera and a video camera. How much does he pay?

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5. Anne, Ryan and Joel collect empty cans for recycling. They collect a total of 1,925 cans. Anne collects half as many cans as Ryan. Joel collects twice as many cans as Ryan. How many cans does Joel collect?

6. David and Joseph have a total of 328 marbles. Matthew and David have 176 marbles. Joseph has 5 times as many marbles as Matthew. How many marbles does David have?

Name: \_\_\_\_\_

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**7.** The library has a total collection of 2,630 books. The number of non-fiction books is 240 fewer than the number of fiction books but 190 more than the number of picture books. How many books of each type are there in the library?

**8.** The total length of 4 blue banners and 5 yellow banners is 49 meters. The total length of 2 blue banners and 1 yellow banner is 17 meters. All banners of the same color have the same length. Find the length of each blue banner.

**Name:** \_\_\_\_\_

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- 9.** At the local clothing store, 3 similar shirts and 4 similar jackets cost \$360, and 1 shirt and 3 jackets cost \$220. Find the cost of each shirt.
- 10.** James bought a few hamsters. For each day after the first day of the week, the hamsters ate 20 grams of food more than the previous day. The hamsters grew fast, finishing 1,260 grams of food in the first week. How much food did the hamsters eat on the first day?

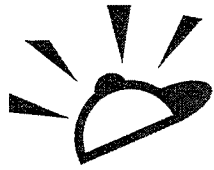
Name: \_\_\_\_\_

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- 11.** Ann had \$198 more than her sister. After their mother gave Ann \$20 and her sister \$60, Ann had twice as much money as her sister. How much money did Ann have at first?
- 12.** There were 7 times as many marbles in Box A as in Box B. After Joyce transferred 294 marbles from Box A to Box B, both boxes had the same number of marbles. How many marbles were there in Box A at first?

Name: \_\_\_\_\_

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## Put on Your Thinking Cap!

### Solve. Show your work.

1. In a mathematics quiz, 20 problems are given. 5 points are given for each correct answer and 2 points are deducted for each incorrect answer. Ashley scores 51 points. How many correct answers does she have?

2. The product of two consecutive even numbers is 624. What is the greater number? (Consecutive even numbers are even numbers placed one after another in an unbroken sequence. For example, 2, 4, 6, 8 or 10, 12, 14.)

Name: \_\_\_\_\_

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3. Use a calculator to multiply.

$$24 \times 11 = \underline{\hspace{2cm}}$$

$$35 \times 11 = \underline{\hspace{2cm}}$$

$$72 \times 11 = \underline{\hspace{2cm}}$$

$$69 \times 11 = \underline{\hspace{2cm}}$$

$$58 \times 11 = \underline{\hspace{2cm}}$$

$$76 \times 11 = \underline{\hspace{2cm}}$$

What do you notice about the answers? Find a shortcut to the answers without using a calculator.

4. Aaron and Benga have a total of 976 trading cards. Benga has 7 times as many cards as Aaron. How many cards should Benga give Aaron so that Aaron will have 3 times as many cards as Benga?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

- 5.** There were 149 angelfish and goldfish in an aquarium. There were twice as many guppies as angelfish. After selling 35 goldfish, there are half as many goldfish as angelfish. How many fish are left in the aquarium?
- 6.** Sophia buys an equal number of oranges and pears for a party. The oranges are bought at a price of 7 for \$2 and the pears are bought at a price of 5 for \$3. She pays \$33 more for the pears than for the oranges.
- a.** How much does Sophia pay in all?
  - b.** How many oranges and pears does she buy altogether?

Name: \_\_\_\_\_

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7. Marit and Jennifer had an equal number of crackers. Each day, Marit ate 12 crackers and Jennifer ate 6 more crackers than Marit. When Jennifer had 24 crackers left, Marit had 96 crackers left. How many crackers did each of them have at first?
8. Robert and Damien had the same amount of money. Each day, Robert spent \$4 and Damien spent \$6. When Damien had \$12 left, Robert had 4 times as much money left as Damien. How much money did each boy have at first?

Name: \_\_\_\_\_

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- 9.** For every 5 highlighters that Agnes buys, she gets 1 free. If Agnes needs 80 highlighters, what is the least number of highlighters she has to buy?
- 10.** Benita has three ropes measuring 54 centimeters, 108 centimeters, and 189 centimeters. She cuts all of them into equal pieces. The length of each piece is the longest possible length she can cut.
- a.** What is the length of each piece of cut rope?
  - b.** How many pieces of cut rope does Benita get?

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11. Jessica and her mother return from shopping with 14 packages. They park the car in the parking lot, which is 120 meters away from their house. Then they make several trips to bring the packages into their house. Jessica's mother can carry 3 packages at a time and Jessica can carry 2. Given that they always walk together and the least possible number of trips is made, find the total distance covered by both of them.

12. Form the greatest and least possible products by filling in each box with one of these digits:

2

3

4

5

6

For each product, use each digit only once.

**Greatest Product**

<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>
<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>
×	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>

**Least Product**

<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>
<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>
×	<input style="width: 100%; height: 100%;" type="text"/>	<input style="width: 100%; height: 100%;" type="text"/>

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CHAPTER  
**3**

# Fractions and Mixed Numbers

## Lesson 3.1 Adding Unlike Fractions

Find two equivalent fractions for each fraction.

1.  $\frac{1}{4} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2.  $\frac{2}{3} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3.  $\frac{4}{9} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4.  $\frac{3}{5} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5.  $\frac{6}{7} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6.  $\frac{5}{8} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

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

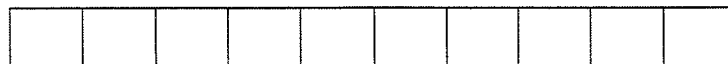
7.  $\frac{2}{3}, \frac{1}{4}$



$$\frac{2}{3} + \frac{1}{4} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

8.  $\frac{2}{5}, \frac{1}{2}$



$$\frac{2}{5} + \frac{1}{2} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Estimate each sum by rounding the fractions to 0,  $\frac{1}{2}$ , or 1. Then find the actual sum. Express each sum in simplest form.

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

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

11.  $\frac{7}{10} + \frac{3}{4}$

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

13.  $\frac{7}{8} + \frac{1}{6}$

14.  $\frac{6}{7} + \frac{3}{4}$

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## Lesson 3.2 Subtracting Unlike Fractions

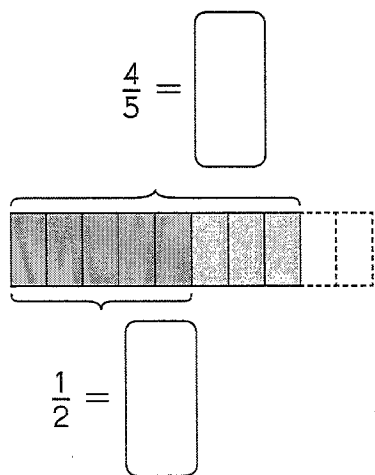
Fill in the blanks.

1. Rewrite the two fractions as like fractions with the same denominator.

$$\begin{array}{c} \times \square \\ \frac{4}{5} = \frac{\square}{\square} \\ \times \square \end{array}$$

$$\begin{array}{c} \times \square \\ \frac{1}{2} = \frac{\square}{\square} \\ \times \square \end{array}$$

Using the equivalent fractions, complete the model and the subtraction sentence.



$$\begin{array}{r} \frac{4}{5} - \frac{1}{2} = \square - \square \\ = \square \end{array}$$

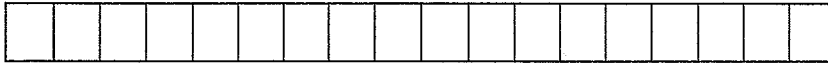
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2. Rewrite the two fractions as like fractions with the same denominator. Then complete the model and the subtraction sentence.

$$\frac{4}{9} = \boxed{\phantom{00}}$$

$$\frac{1}{6} = \boxed{\phantom{00}}$$



$$\frac{4}{9} - \frac{1}{6} = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

**Estimate each difference by rounding the fractions to 0,  $\frac{1}{2}$ , or 1. Then find the actual difference. Express each difference in simplest form.**

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

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

5.  $\frac{8}{9} - \frac{7}{8}$

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

7.  $\frac{5}{6} - \frac{3}{8}$

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



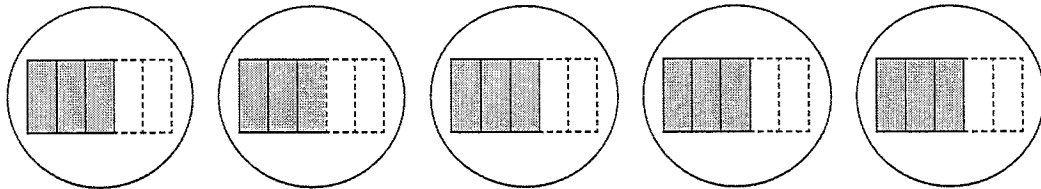
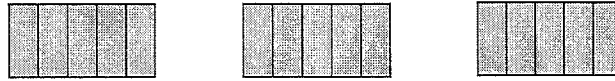
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### Lesson 3.3 Fractions, Mixed Numbers, and Division Expressions

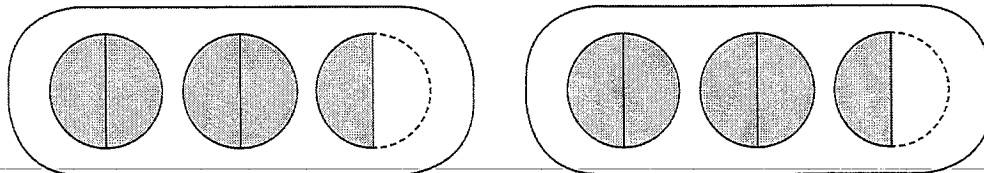
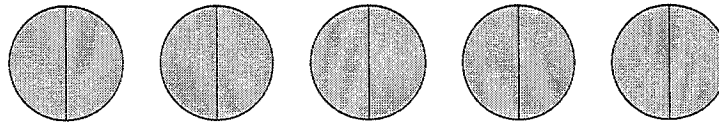
Look at each model. Then write each division expression as a fraction and as a mixed number if appropriate.

1.



$$3 \div 5 = \frac{\square}{\square}$$

2.



$$5 \div 2 = \frac{\square}{\square} = \square \frac{\square}{\square}$$

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**Write each division expression as a fraction or mixed number in simplest form.**

3.  $3 \div 25$

4.  $4 \div 38$

5.  $54 \div 7$

6.  $48 \div 9$

**Express each fraction as a mixed number in simplest form.**

7.  $\frac{18}{4}$

8.  $\frac{20}{6}$

9.  $\frac{44}{8}$

10.  $\frac{42}{9}$

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## Lesson 3.4 Expressing Fractions, Mixed Numbers, and Division Expressions as Decimals

Rewrite each fraction as a decimal.

1.  $\frac{9}{10}$

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

3.  $\frac{3}{20}$

4.  $\frac{9}{25}$

5.  $\frac{23}{10}$

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

7.  $\frac{11}{4}$

8.  $\frac{18}{5}$

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**Express each division expression as a decimal.**

9.  $17 \div 25$

10.  $15 \div 4$

**Express each mixed number as a decimal.**

11.  $2\frac{3}{5}$

12.  $3\frac{7}{8}$

13.  $4\frac{7}{20}$

14.  $5\frac{3}{4}$

**Solve. Show your work.**

15. Rayza buys 6 similar notebooks for \$15. How much does she pay for each notebook?

Name: \_\_\_\_\_

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## Lesson 3.5 Adding Mixed Numbers

Add. Express each sum in simplest form.

1.  $3\frac{3}{8} + 2\frac{1}{2}$

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

3.  $1\frac{2}{3} + 3\frac{7}{8}$

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

5.  $2\frac{11}{12} + 4\frac{7}{8}$

6.  $3\frac{2}{3} + 2\frac{7}{10}$

Name: \_\_\_\_\_

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**Estimate each sum by rounding to the nearest half or whole number.**

7.  $1\frac{4}{5} + 1\frac{1}{2}$

8.  $4\frac{3}{4} + 5\frac{7}{10}$

9.  $1\frac{3}{8} + 2\frac{1}{7}$

10.  $2\frac{2}{3} + 4\frac{5}{7}$

11.  $3\frac{7}{12} + 2\frac{5}{6}$

12.  $9\frac{2}{9} + 10\frac{2}{11}$

Name: \_\_\_\_\_

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## Lesson 3.6 Subtracting Mixed Numbers

Subtract. Express each difference in simplest form.

1.  $3\frac{8}{9} - 1\frac{1}{3}$

2.  $5\frac{5}{6} - 4\frac{7}{12}$

3.  $4\frac{1}{4} - 1\frac{9}{10}$

4.  $6\frac{1}{8} - 1\frac{11}{12}$

5.  $2\frac{1}{3} - 1\frac{5}{7}$

6.  $4\frac{2}{9} - 2\frac{5}{6}$

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**Estimate each difference by rounding to the nearest half or whole number.**

7.  $3\frac{1}{2} - 1\frac{2}{3}$

8.  $10\frac{1}{2} - 5\frac{4}{5}$

9.  $7\frac{1}{6} - 6\frac{5}{8}$

10.  $3\frac{1}{2} - 1\frac{5}{9}$

11.  $4\frac{3}{7} - 2\frac{1}{4}$

12.  $5\frac{9}{10} - 4\frac{5}{11}$



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Date: \_\_\_\_\_

## Lesson 3.7 Real-World Problems: Fractions and Mixed Numbers

**Solve. Show your work.**

1. It takes 28 minutes to play 8 songs on a radio. Every song is played for the same length of time. How long does it take to play 1 song? Express your answer as

  - a. a mixed number
  - b. a decimal
  
2. At a parade,  $\frac{1}{4}$  of the participants have red hair,  $\frac{1}{6}$  of them have brown hair, and the rest of the participants have black hair. What fraction of the participants have black hair?

Name: \_\_\_\_\_

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3. Rashan buys  $3\frac{7}{10}$  pounds of flour and Diego buys  $2\frac{3}{4}$  pounds of flour. They use  $4\frac{3}{5}$  pounds of flour to bake bread. How much flour is left? Express your answer as a decimal.

4. Maria uses  $2\frac{3}{4}$  meters of cloth to make a dress and  $\frac{5}{8}$  meter less cloth to make a blouse. How much cloth does she use in all? Express your answer as a decimal.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

5. A carton contains  $1\frac{8}{9}$  liters of apple juice. Rosalia drinks  $\frac{1}{6}$  liter of the juice every day. How much apple juice is left in the carton after a week?

6. Leena bakes a loaf of bread. She eats  $\frac{1}{8}$  of the loaf and gives  $\frac{1}{6}$  of it to each of her 3 friends. What fraction of the loaf of bread is left?

Name: \_\_\_\_\_

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7. Thomas reads  $\frac{2}{9}$  of a book on Monday and  $\frac{1}{6}$  of it on Tuesday. He reads twice as many pages on Wednesday as on Tuesday. What fraction of the book is not read?
8. In a day, Jamal spent  $1\frac{2}{3}$  hours watching television,  $1\frac{4}{5}$  hours taking an afternoon nap, and  $\frac{7}{8}$  hour helping his mother with housework.
- How much time did Jamal spend on watching television and helping with housework?
  - How much more time did Jamal spend taking the nap than helping with housework?

Name: \_\_\_\_\_

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9. Madison buys  $2\frac{3}{5}$  pounds of meat. Her neighbor buys  $\frac{3}{4}$  pound more meat than Madison. How many pounds of meat do they buy altogether?

10. Box A weighs  $1\frac{7}{10}$  pounds. Box B weighs  $\frac{1}{4}$  pound less than Box A. What is the total weight of the two boxes?

Name: \_\_\_\_\_

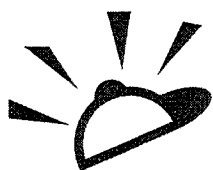
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11. The length of a storeroom is  $4\frac{3}{5}$  meters. The storeroom's width is  $\frac{3}{4}$  meter shorter than its length. What is the perimeter of the storeroom?

12. John poured  $2\frac{1}{2}$  liters of water into a tank. Then he poured out  $3\frac{2}{5}$  liters of water from the tank, leaving  $4\frac{1}{5}$  liters of water in the tank. How much water was in the tank at first?

Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Put on Your Thinking Cap!

### Solve. Show your work.

1. Two ropes, P and Q, are each cut into 3 equal pieces. Each piece cut from rope Q is  $\frac{2}{5}$  meter longer than each piece cut from rope P. If rope P is 2 meters long, what is the length of rope Q?
  
  
  
  
  
  
  
  
  
  
2. Lionel has  $\frac{3}{4}$  as much money as Gary. Gary has  $\frac{1}{3}$  as much money as Vivian. How many times Lionel's amount of money is Vivian's amount of money?

Name: \_\_\_\_\_

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3. Andrew found that  $\frac{4}{5}$  of his savings is equal to  $\frac{1}{2}$  of Malik's savings.  
What fraction of Malik's savings is Andrew's savings?

4. Find the value of:

$$\frac{1}{100} + \frac{2}{100} + \frac{3}{100} + \dots + \frac{97}{100} + \frac{98}{100} + \frac{99}{100}$$

$$\frac{1}{100} + \frac{99}{100} = 1$$





Name: \_\_\_\_\_

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5. Find the value of:

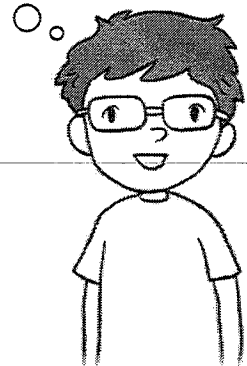
$$\frac{1}{99} + \frac{2}{99} + \frac{3}{99} + \dots + \frac{8}{99} + \frac{9}{99} + \frac{10}{99}$$

6. Find the value of:

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{28 \times 29} + \frac{1}{29 \times 30}$$

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

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



Name: \_\_\_\_\_

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7. In a class where there are as many girls as boys,  $\frac{2}{5}$  of the boys and  $\frac{1}{2}$  of the girls went to a fun fair. What fraction of the students in the class did not go to the fun fair?

8. Alvin has some marbles in a box. He keeps  $\frac{1}{3}$  of them and gives the remainder to Joyce and Sean. Joyce gets  $\frac{5}{8}$  of the remainder. What fraction of the marbles does Sean get?

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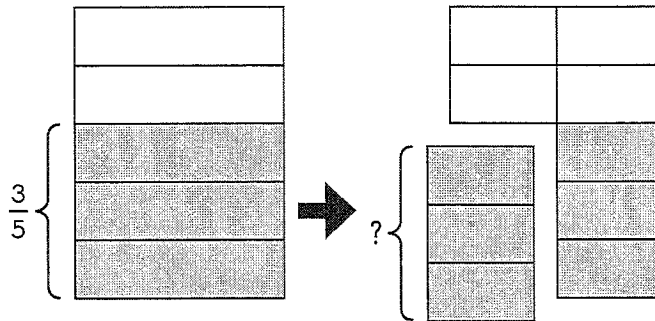
CHAPTER  
**4**

# Multiplying and Dividing Fractions and Mixed Numbers

## Lesson 4.1 Product of Proper Fractions

Look at the diagram. Then complete.

1.



$$\frac{1}{2} \text{ of } \frac{3}{5} = \frac{\square}{\square} \times \frac{\square}{\square}$$

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

Complete.

2.

$$\frac{3}{4} \text{ of } \frac{5}{7} = \frac{\square}{\square} \times \frac{\square}{\square}$$

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

Name: \_\_\_\_\_

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**Multiply. Express each product in simplest form:**

3.  $\frac{5}{6}$  of  $\frac{9}{11}$

4.  $\frac{7}{10}$  of  $\frac{5}{9}$

5.  $\frac{7}{8} \times \frac{10}{14}$

6.  $\frac{8}{9} \times \frac{9}{10}$

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

8.  $\frac{5}{7} \times \frac{7}{10}$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 4.2 Real-World Problems: Multiplication with Proper Fractions

**Solve. Show your work.**

1. Tian has 56 paper clips. He gives  $\frac{3}{4}$  of them to Joe. Joe gives  $\frac{2}{7}$  of what he receives to Rahul. How many paper clips does Rahul get?

2. Tony is given  $\frac{9}{10}$  hour to mow a lawn. He only uses  $\frac{2}{3}$  of the given time to mow the lawn. How much time is left?

Name: \_\_\_\_\_

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3. Keith spends  $\frac{1}{6}$  of his savings on a magazine and  $\frac{2}{5}$  of the remainder on a storybook. What fraction of his savings is left?

4. There are some caps in a box.  $\frac{1}{6}$  of them are red,  $\frac{1}{3}$  are blue, and  $\frac{3}{7}$  of the remainder are green. If there are 27 green caps, how many caps are there altogether?

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5. Lily receives 30 messages on her cell phone. Of those messages,  $\frac{1}{5}$  are picture messages and  $\frac{7}{8}$  of the remainder are text messages. How many text messages does she receive?

6. Sam makes some bread rolls. He gives  $\frac{2}{5}$  of the bread rolls to his neighbor and  $\frac{4}{9}$  of the remainder to his cousin. He has 15 bread rolls left. How many bread rolls does Sam make?

Name: \_\_\_\_\_

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7. Anne has 24 more cards than Devi. Anne finds that  $\frac{3}{5}$  of Devi's cards are equal to  $\frac{1}{2}$  of her cards. How many cards does Anne have?

8. Roxanne has  $\frac{1}{2}$  as many beads as Sherie. The number of beads Sherie has is  $\frac{4}{5}$  that of Marcos. Marcos has 165 beads. How many more beads does Marcos have than Roxanne?



Name: \_\_\_\_\_

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9. Ken spends  $\frac{1}{5}$  of his money on a dictionary. He gives \$21 to his brother and has  $\frac{1}{2}$  of his money left. How much money does Ken have left?

10. Victoria spends  $\frac{5}{9}$  of her money on a flan and two chicken pies. Each chicken pie costs  $\frac{1}{6}$  as much as the flan. Victoria has \$24 left.

- a. How much does Victoria spend?
- b. How much does the flan cost?

Name: \_\_\_\_\_

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11. Melody has 98 stickers. She gives  $\frac{2}{7}$  of them to her sister and  $\frac{3}{5}$  of the remainder to her brother. If she wants to increase her collection of stickers to twice what she had originally, how many more stickers must Melody buy?
12. Jacky bakes some biscuits. He keeps  $\frac{3}{7}$  of the biscuits in container A,  $\frac{5}{8}$  of the remainder in container B, and the rest in container C. There are 21 more biscuits in container A than in container C. How many biscuits does Jacky bake?

Name: \_\_\_\_\_

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## Lesson 4.3 Product of an Improper Fraction and a Proper or Improper Fraction

**Multiply.** Express each product in simplest form.

1.  $\frac{7}{4} \times \frac{9}{14}$

2.  $\frac{8}{5} \times \frac{3}{4}$

3.  $\frac{14}{9} \times \frac{6}{7}$

4.  $\frac{9}{7} \times \frac{5}{6}$

5.  $\frac{9}{8} \times \frac{4}{7}$

6.  $\frac{7}{5} \times \frac{9}{14}$

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**Multiply. Express each product in simplest form.**

7.  $\frac{9}{5} \times \frac{10}{3}$

8.  $\frac{17}{12} \times \frac{9}{4}$

9.  $\frac{7}{3} \times \frac{12}{5}$

10.  $\frac{14}{6} \times \frac{8}{7}$

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

12.  $\frac{13}{10} \times \frac{15}{8}$

Name: \_\_\_\_\_

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## Lesson 4.4 Product of a Mixed Number and a Whole Number

**Multiply.** Express each product in simplest form.

1.  $3\frac{4}{5} \times 2$

2.  $2\frac{3}{4} \times 8$

3.  $2\frac{1}{6} \times 4$

4.  $21 \times 1\frac{6}{7}$

5.  $40 \times 2\frac{5}{8}$

6.  $6 \times 3\frac{4}{9}$

Name: \_\_\_\_\_

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**Multiply. Express each product in simplest form.**

7.  $3\frac{2}{3} \times 17$

8.  $2\frac{3}{7} \times 16$

9.  $2\frac{5}{9} \times 12$

10.  $18 \times 1\frac{7}{8}$

11.  $14 \times 3\frac{3}{10}$

12.  $9 \times 2\frac{5}{6}$

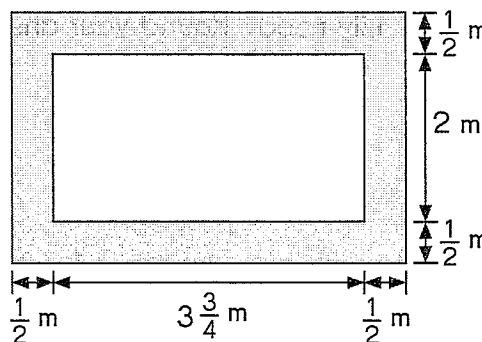


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3. Puppy A is  $\frac{3}{4}$  as heavy as puppy B. Puppy C is twice as heavy as puppy A. If the weight of puppy B is 8 pounds, find the weight of puppy C.

4. A flowerbed is  $3\frac{3}{4}$  meters long and 2 meters wide. Uncle James wants to build a border around the flowerbed. The width of the border is  $\frac{1}{2}$  meter. The cost of building the border is \$20 per square meter. How much does Uncle James have to pay to have the border built?





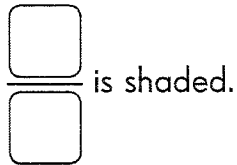
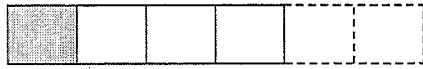
Name: \_\_\_\_\_

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## Lesson 4.6 Dividing a Fraction by a Whole Number

Shade parts of the model to show the division expression.  
Then fill in the blanks.

1.  $\frac{2}{3} \div 4$



$\frac{2}{3} \div 4 =$  \_\_\_\_\_

**Divide. Draw a model to help you.**

2.  $\frac{1}{6} \div 2$

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**Divide. Draw a model to help you.**

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

**Divide. Express each answer in simplest form.**

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

5.  $\frac{7}{8} \div 21$

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

7.  $\frac{5}{6} \div 15$

Name: \_\_\_\_\_

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**Solve. Show your work.**

8. A bottle contains  $\frac{5}{12}$  liter of paint. Mr. Jacobs pours all the paint equally into 5 pots. How much paint is there in each pot?

9. During lunch,  $\frac{1}{2}$  of a loaf of bread is shared equally among 5 girls. What fraction of the loaf of bread does each girl have?

Name: \_\_\_\_\_

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10. A string of length  $\frac{9}{10}$  meter is cut into 6 equal pieces. What is the total length of 2 of the pieces?

11. Peggy had a bag of nuts. She ate  $\frac{1}{5}$  of the nuts and gave the remaining nuts to 3 friends equally. What fraction of the nuts did each friend get?

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## Lesson 4.7 Real-World Problems: Multiplication and Division with Fractions

**Solve. Show your work.**

1. Maria and Farida had 250 beads altogether. After Maria used 18 beads to make a bracelet and Farida gave away  $\frac{2}{5}$  of her beads, they have the same number of beads left. How many beads did Maria have at first?

2. Paul has  $\frac{2}{3}$  as many postcards as Shawn. The number of postcards Shawn has is  $\frac{3}{5}$  of the number of postcards Tim has. If the three boys have 280 postcards altogether, how many more postcards does Tim have than Paul?

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3. There are 1,800 students in a school, and 540 of them do not take part in sports activities. Of these students who do not take part,  $\frac{5}{9}$  are girls. There are  $\frac{2}{3}$  as many girls as boys in the school. How many boys take part in sports activities?

4. Daniel and William have some marbles. Daniel finds that  $\frac{2}{5}$  of the number of marbles he has is  $\frac{4}{5}$  the number of marbles William has. William has 195 marbles. How many marbles does Daniel have?

Name: \_\_\_\_\_

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5. Katherine and Shally had \$288 altogether. Katherine gave  $\frac{1}{3}$  of her share to Shally and their father gave \$68 to Shally. They now have the same amount of money. How much money did Shally have at first?

6. Class A folds 160 fewer paper cranes than class B and  $\frac{2}{3}$  as many paper cranes as class C. Class B folds 92 more paper cranes than class C. How many paper cranes does class B fold?

Name: \_\_\_\_\_

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7. Devi and her brother had the same amount of money. After Devi spent  $\frac{2}{5}$  of her money and her brother spent  $\frac{3}{10}$  of his money, they had \$78 left altogether. How much did they spend altogether?

8. Emily and Sarah had a total of \$80. After, Sarah spent  $\frac{1}{3}$  of her money and Emily spent \$17, Emily had twice as much money as Sarah. How much more money did Emily have than Sarah at first?



Name: \_\_\_\_\_

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9. At the fair, 220 balloons are given to 40 children,  $\frac{3}{8}$  of whom are girls. Each boy receives the same number of balloons. Each girl receives twice as many balloons as each boy. How many more balloons do all the girls receive than all the boys?

10. In a piggy bank,  $\frac{3}{7}$  of the number of coins are quarters and the rest are nickels. The total value of the nickels is \$12. How many coins are in the piggy bank?

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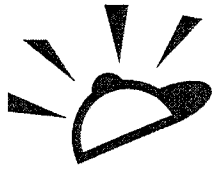
Date: \_\_\_\_\_

11. After saving  $\frac{2}{7}$  of his paycheck for the month, Mr. Donovan has \$1,335 left to spend. Mrs. Spencer saves  $\frac{3}{8}$  of her paycheck. Both of them save the same amount of money. How much is Mrs. Spencer's paycheck?

12. Susie bought 5 kilograms of flour and 4 kilograms of sugar for \$12. If  $\frac{3}{4}$  kilogram of flour cost as much as  $\frac{3}{5}$  kilogram of sugar, find the cost of 1 kilogram of sugar.

Name: \_\_\_\_\_

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## Put on Your Thinking Cap!

**Solve. Show your work.**

1. Mrs. Tan spent  $\frac{5}{8}$  of her savings on a microwave oven and a refrigerator. Of the amount she spent,  $\frac{4}{7}$  was used to pay for the refrigerator. The refrigerator cost \$280 more than the microwave oven. How much was Mrs. Tan's savings at first?
  
  
  
  
  
  
  
  
  
  
2. Reena and Pauline have some bookmarks. If Reena gives Pauline 28 bookmarks, they will have the same number of bookmarks. If Pauline gives Reena 35 bookmarks, she will have  $\frac{1}{3}$  of what Reena has. How many bookmarks does Reena have?

Name: \_\_\_\_\_

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3. Jane had  $\frac{3}{4}$  as much money as Kerrie. After spending \$203, Jane had  $\frac{1}{6}$  as much money as Kerrie. How much money did Kerrie have?

4. There were 120 students in the town library.  $\frac{3}{5}$  of them were girls. Some girls then left the library. The number of girls remaining in the library is  $\frac{4}{7}$  of all of the remaining students. How many girls left the library?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

5. There were  $\frac{3}{5}$  as many adults as children on a bus. At the next stop, 6 adults and 6 children boarded the bus. As a result, there are  $\frac{2}{3}$  as many adults as children on the bus. How many people were on the bus at first?

6. In a box,  $\frac{2}{5}$  of the counters were red and the rest were blue. After putting another 48 blue counters into the box,  $\frac{3}{4}$  of the counters are blue. How many counters were in the box at first?

Name: \_\_\_\_\_

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7. There were  $\frac{5}{8}$  as many apples as oranges at a fruit stand. After  $\frac{1}{2}$  of the apples and  $\frac{3}{8}$  of the oranges were sold, a total of 120 apples and oranges are left at the stand. How many apples and oranges were there at the stand at first?
8. Noah bought a jigsaw puzzle. On the first day, he fit  $\frac{2}{5}$  of the pieces of the puzzle together. On the second day, he put another 300 pieces into the puzzle. As a result, the number of the pieces left to put in the puzzle is  $\frac{7}{13}$  of the number of pieces already in the puzzle. How many pieces does the jigsaw puzzle consist of?

Name: \_\_\_\_\_

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9. Samuel and Pat had a total of 720 stamps at first. Samuel gave  $\frac{1}{4}$  of his stamps to Pat. In return, Pat gave  $\frac{1}{3}$  of her total number of stamps to Samuel. They then had an equal number of stamps each. How many stamps did Samuel have at first?

Name: \_\_\_\_\_

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**10.** Pails A, B, and C contain some water. These steps are taken:

**Step 1**  $\frac{1}{4}$  of the water in pail A is poured into pail B.

**Step 2**  $\frac{1}{4}$  of the water in pail B is poured into pail C.

**Step 3**  $\frac{1}{4}$  of the water in pail C is poured into pail A.

In the end, all the pails contain 18 gallons of water each.  
Find the amount of water in each pail at first.



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CHAPTER  
**5**

# Algebra

## Lesson 5.1 Using Letters as Numbers

Write an expression for each situation.

1. Add 8 to  $w$

2. Subtract 10 from  $a$

3. Sum of  $p$  and  $\frac{3}{4}$

4. Subtract  $6y$  from 5

5. Multiply 6 by  $g$

6. Divide  $3k$  by 2

7. 4 times as many as  $h$

8. 12 less than  $5s$

9. 8 more than  $7b$

10. Divide  $5d$  by 4

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**Evaluate each expression for  $m = 4$ .**

11.  $11 - m$

12.  $m + 9$

**Evaluate each expression for  $k = 8$ .**

13.  $3k + 7$

14.  $12 + 6k$

15.  $30 - 2k$

16.  $7k - 19$

**Evaluate each expression for  $y = 6$ .**

17.  $\frac{y + 8}{2}$

18.  $\frac{y + 9}{3}$

19.  $\frac{5y + 20}{5}$

20.  $\frac{8y}{3} - 7$

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**Write an expression for each situation.**

**21.** Each box of crayons costs  $x$  dollars. How much does Mrs. Smith pay for 5 boxes of crayons?

**22.** Alyssa has  $6p$  dollars. Her brother has 15 dollars. How much more money does Alyssa have than her brother?

**23.** Mrs. Estrada has  $5m$  liters of milk. Her family drinks 2 liters each day. How much milk is left after a week?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**24.** Gary has  $3y$  comics. Shaun has 8 comics. They share their comics equally. How many comics does each of them have?

**25.** Evan bought  $k$  bottles of pasta sauce at \$4 each. He gave \$10 to the cashier. How much change did he receive?

Name: \_\_\_\_\_

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**26.** At a bookstore, 8 similar books cost  $y$  dollars. What is the cost of 3 such books?

**27.** John has  $y$  stickers. He keeps 20 stickers for himself and gives the remainder to his two sisters equally. How many stickers does each sister get?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**28.** Kenny has  $m$  guppies and 10 angelfish. He buys another 20 guppies and 30 angelfish. How many fish does Kenny have now?

**29.** A string of length  $g$  inches is cut into two pieces. One piece is 10 inches longer than the other. Find the length of the shorter piece.

Name: \_\_\_\_\_

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## Lesson 5.2 Simplifying Algebraic Expressions

Simplify each expression.

1.  $g + g + g$

2.  $4w + 6w$

3.  $8a - 3a$

4.  $15b - 7b$

5.  $16h - 7h - 2h$

6.  $20k - 6k - 8k$

7.  $9d - 5d + 7d$

8.  $17n + 6n - 8n$

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**Simplify each expression.**

9.  $5x + 7x - 4$

10.  $6 + 7g + 3g$

11.  $8n + 5 - 4n$

12.  $8d - 5 + 7d - 9d$

13.  $3 + 8k + 9 - 5k$

14.  $10w + 11 - 3w - 8$

15.  $10 + 5h - 6 + 8h$

16.  $11 + 7m - 6 - 4m$

17.  $8 + 12s - 7 - 9s + 4$

18.  $5n + 10 + 8n - 9n + 3$



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## Lesson 5.3 Inequalities and Equations

Complete with  $>$ ,  $<$ , or  $=$ .

1. For  $k = 4$ ,  $3k$   15.

2. For  $k = 5$ ,  $7k$   35.

3. For  $k = 6$ ,  $6k$   30.

4. For  $k = 10$ ,  $8k$   50.

Complete with  $>$ ,  $<$ , or  $=$  for  $w = 7$ .

5.  $2w - 5$   6

6.  $4w + 3$   36

7.  $5w - 8$   20

8.  $20 - 2w$   6

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**Solve each equation.**

**9.**  $4n = 28$

**10.**  $3d + 5 = 17$

**11.**  $10w - 18 = 42$

**12.**  $42 + 6h = 84$

**13.**  $7m - 35 = 5 + 2m$

**14.**  $4k + 44 = 10k - 10$

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## Lesson 5.4 Real-World Problems: Algebra

**Solve. Show your work.**

1. Joan is  $y$  years old. Her father is 4 times as old as she is and 28 years older than her brother.
- Find, in terms of  $y$ , the age of Joan's brother.
  - If  $y = 12$ , how old is her brother?

2. Mr. Tyler wants to rent a car for  $n$  days. The car rental company charges a fixed fee of \$120 and an extra \$18 for each day of rental.
- Find, in terms of  $n$ , the cost of renting the car.
  - If  $n = 8$ , find the cost of renting the car.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

3. Kenneth has \$5. He spends  $g$  cents every day. How much money does he have left after one week?
- Express your answer in cents.
  - Express your answer in dollars.

4. The total age of Amelia, Bernard, and Cindy is  $10w$  years. Amelia is  $2w$  years old. Bernard is as old as Cindy.
- Express Cindy's age in terms of  $w$ .
  - If  $w = 4$ , how old is Cindy?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

5. Patrick buys 3 model planes for  $p$  dollars each and Amanda buys 2 model planes for \$36.
- How much does Patrick pay for the model planes?
  - Find the value of  $p$  so that Patrick and Amanda pay the same amount of money for the model planes.

6. Nancy has  $(4k + 6)$  meters of ribbon. Kevin has  $(6k - 2)$  meters of ribbon.
- If  $k = 5$ , who has the shorter ribbon?
  - For what value of  $k$  will they have the same length of ribbon?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

7. Mr. Anderson earns  $50b$  dollars a month. Each month he spends  $28b$  dollars and saves the rest. He saves more than he spends. Do you agree?

8. Anne has  $p$  game cards. Benny has 3 times as many game cards as Anne. Colin has 30 game cards. What is the least value of  $p$  so that Anne and Benny together have more game cards than Colin?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

**3.** Lena has 80 stickers. She gives  $5m$  stickers to her friends and shares the remaining stickers equally with her 2 brothers.

- a.** How many stickers does she give each brother in terms of  $m$ ?
- b.** If  $m = 4$ , how many stickers does each brother get?

**4.** Tom's monthly allowance is  $k$  dollars. Jerry's monthly allowance is 3 times as much as Tom's monthly allowance. Danny's monthly allowance is \$20 more than Jerry's monthly allowance.

- a.** What is their total monthly allowance in terms of  $k$ ?
- b.** If Tom's monthly allowance is \$18, find their total monthly allowance.








# Answers

## Chapter 1







### Lesson 1.1

1.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
					

- a. three hundred fifty-six thousand, four hundred one  
 b. 356,401

2. 28,199                      3. 90,038  
 4. 412,603                  5. 800,005  
 6. 507,700                  7. 600,600  
 8. Fifty thousand, six hundred eighty  
 9. Two hundred fifty-five thousand, four hundred thirty  
 10. One hundred ninety-nine thousand, three hundred three  
 11. Eight hundred seventy-two thousand, nine hundred  
 12. Three hundred five thousand, seventy-two  
 13. 304,678                  14. 876,430  
 15. 304,687                  16. 876,403  
 17. Answers vary.  
 Samples: 306,748; 346,780; 387,406  
 18.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
						

- a. six million, two hundred four thousand, three hundred thirteen  
 b. 6,204,313

19. 9,270,050                  20. 6,084,101  
 21. 7,006,899                  22. 4,502,015  
 23. 5,050,602                  24. 8,400,085  
 25. 3,000,703

26. Eight million, eight hundred eight thousand, four hundred twenty-nine  
 27. Three million, two thousand, five hundred sixty-six  
 28. Five million, nine hundred seventy thousand, one hundred three  
 29. Two million, fifty thousand, sixty  
 30. Four million, seven hundred thousand, nine hundred  
 31. 1,023,596  
 32. Answers vary.  
 Samples: 3,629,501; 3,269,510; 3,029,561  
 33. Answers vary.  
 Samples: 3,902,615; 3,260,519; 3,150,269  
 34. Answers vary.  
 Samples: 6,903,512; 6,935,012; 9,052,136

### Lesson 1.2

1. 

900,000
---------

20,000
--------

5,000
-------

0
---

30
----

8
---

2. ten thousands                  3. 90,000  
 4. 90,000                          5. ten thousands  
 6. hundreds                      7. hundred thousands  
 8. 5,000                            9. 500  
 10. 500,000                        11. 8  
 12. ten thousands                13. hundred thousands  
 14. 60,000; ten thousands  
 15. 0; 0                              16. 10,000  
 17. 700,000                        18. 4,000  
 19. 204,891                        20. 570,030  
 21. 306,010

22. 

7,000,000
800,000
0
3,000
500
20
4

23. 6; 60,000  
25. 780  
27. 6,085,323  
29. 1,976,805
24. millions  
26. 728,000  
28. 2,700,508  
30. 580,249

### Lesson 1.3

1. 123,087  
3. 4,314,356  
5. 785,900  
7. 197,500 283,500 1,795,000 2,385,000 2,583,000  
8. 895,390 8,476,900 8,593,800 8,746,800 8,764,500  
9. 5,298,053 5,296,000 2,890,670 980,576 594,287  
10. 3,900,100 3,003,500 2,900,800 390,300 303,500  
11. a. 1,000  
b. 1,000  
c. 1,000; 479,270  
d. 479,270  
12. a. 20,000  
b. 20,000  
c. 20,000; 4,440,000  
d. 4,440,000  
13. 1,005,600; 1,205,600; count on by 200,000  
14. 935,800; 920,800; count back by 15,000  
15. 5,391,200; 5,441,200; count on by 50,000  
16. 1,158,600; 1,058,500; count back by 100,100

### Lesson 1.4

1. 4,000  
3. 725,000  
5. 15,000  
7. 12,000  
9. 56,000  
11. 900  
13. 900  
15. 2,832 rounds to 3,000.  
1,475 rounds to 1,000.  
 $3,000 + 1,000 = 4,000$   
The estimated number of tourists was 4,000.  
16.  $4,342 \div 7$  is about  $4,200 \div 7 = 600$ .  
The estimated number of visitors on Monday was 600.  
17.  $4 \times \$1,000 = \$4,000$   
His estimated total sales was \$4,000.  
18.  $4 \times \$1,500 = \$6,000$   
His estimated total sales was \$6,000.  
19.  $4 \times \$1,499 = \$5,996$   
His actual total sales was \$5,996. Answers vary; Exercise 17 is easier to calculate; Exercise 18 gives an estimate that is closer to the actual total sales.

### Put on Your Thinking Cap!

Thinking skill: Identifying patterns and relationships

Strategy: Look for pattern

1. 200,000  
3. 1,800,000  
5. 27,000  
6. Thinking skill: Comparing  
Strategy: Use guess and check  
Solution: Estimate the number. Then guess and check your answers.  
 $20 \times 20 = 400$ ,  $30 \times 30 = 900$   
600 is between 400 and 900 so the two numbers are greater than 20 but less than 30.  
 $24 \times 25 = 600$   
The page numbers are 24 and 25.  
7. Thinking skill: Comparing  
Strategy: Use guess and check  
Solution: 9,805,472

8. Thinking skill: Comparing  
 Strategy: Use guess and check  
 Solution: 394,825 or 394,865

## Chapter 2

### Lesson 2.1

- |            |               |
|------------|---------------|
| 1. 6,541   | 2. 8,594      |
| 3. 6,471   | 4. 7,624      |
| 5. 2,538   | 6. 3,185      |
| 7. 13,176  | 8. 92,136     |
| 9. 25,192  | 10. 27,782    |
| 11. 75,792 | 12. 1,020,600 |
| 13. 908    | 14. 793       |
| 15. 56     | 16. 84        |
| 17. 436    | 18. 3286.5    |

19. Answers vary.

Samples:  $679 \times 11 \times 91 = 679,679$ ;

$189 \times 11 \times 91 = 189,189$ . The answer will be the 3-digit number repeated.

### Lesson 2.2

- |                           |                    |
|---------------------------|--------------------|
| 1. 380                    | 2. 7,460           |
| 3. 6,240                  | 4. 8,570           |
| 5. 7,580                  | 6. 6,800           |
| 7. 10                     | 8. 190             |
| 9. 10                     | 10. 10             |
| 11. 6,400                 | 12. 80,800         |
| 13. 8; 448; 4,480         |                    |
| 14. 4; 3,024; 30,240      |                    |
| 15. 5; 3,400; 34,000      |                    |
| 16. 857; 6; 5,142; 51,420 |                    |
| 17. 1,520                 | 18. 45,760         |
| 19. 14,700                | 20. 26,250         |
| 21. 4,700                 | 22. 32,500         |
| 23. 16,800                | 24. 231,000        |
| 25. 192,000               | 26. 759,000        |
| 27. 100                   | 28. 7,120          |
| 29. 1,000                 | 30. 100            |
| 31. 7,910                 | 32. 5,200          |
| 33. 6; 144; 14,400        | 34. 4; 432; 43,200 |

- |                           |                         |
|---------------------------|-------------------------|
| 35. 5; 800; 80,000        | 36. 3; 111; 111,000     |
| 37. 8; 824; 824,000       | 38. 4; 1,300; 1,300,000 |
| 39. 146,300               | 40. 1,314,000           |
| 41. 500; 90; 45,000       | 42. 50; 300; 15,000     |
| 43. 4,000; 500; 2,000,000 |                         |
| 44. 2,000; 700; 1,400,000 |                         |

### Lesson 2.3

- |            |            |
|------------|------------|
| 1. 3,680   | 2. 4,770   |
| 3. 2,254   | 4. 3,016   |
| 5. 2,331   | 6. 3,055   |
| 7. 3,698   | 8. 8,064   |
| 9. 30,520  | 10. 22,200 |
| 11. 13,365 | 12. 47,936 |
| 13. 49,452 | 14. 97,278 |
| 15. 93,834 | 16. 74,592 |

### Lesson 2.4

- |                         |                     |
|-------------------------|---------------------|
| 1. 720                  | 2. 280              |
| 3. 2,300                | 4. 68,000           |
| 5. 232                  | 6. 1,600            |
| 7. 10                   | 8. 10               |
| 9. 3,980                | 10. 55,000          |
| 11. 10; 930; 310        | 12. 5; 950; 5; 190  |
| 13. 6; 12,600; 6; 2,100 |                     |
| 14. 1,500               | 15. 6,200           |
| 16. 5,400               | 17. 3,820           |
| 18. 48                  | 19. 357             |
| 20. 79                  | 21. 350             |
| 22. 192                 | 23. 275,000         |
| 24. 100                 | 25. 1,000           |
| 26. 514,000             | 27. 680,000         |
| 28. 100; 135; 45        | 29. 5; 850; 5; 170  |
| 30. 100; 8,400; 2,100   | 31. 1,000; 924; 154 |
| 32. 9; 981; 9; 109      | 33. 1,000; 756; 108 |
| 34. 31                  | 35. 152             |
| 36. 800; 40; 20         | 37. 7,000; 500; 14  |
| 38. 9,000; 300; 30      | 39. 4,000; 20; 200  |

### Lesson 2.5

- 4
- 5 R 10
- 3 R 1
- 11 R 48
- 8 R 14
- 7 R 2
- 21 R 15
- 18 R 21
- Estimated quotient = 80  
Actual quotient = 79
- Estimated quotient = 60  
Actual quotient = 65
- Estimated quotient = 100  
Actual quotient = 106
- Estimated quotient = 80  
Actual quotient = 82
- Estimated quotient = 100  
Actual quotient = 99
- Estimated quotient = 40  
Actual quotient = 38
- Estimated quotient = 30  
Actual quotient = 26
- Estimated quotient = 20  
Actual quotient = 19

### Lesson 2.6

- 110  
**Step 1**  $60 - 20 = 40$   
**Step 2**  $40 + 70 = 110$
- 280  
**Step 1**  $200 \div 5 = 40$   
**Step 2**  $40 \times 7 = 280$
- 82  
**Step 1**  $135 \div 3 = 45$   
**Step 2**  $100 - 45 = 55$   
**Step 3**  $55 + 27 = 82$
- 200  
**Step 1**  $108 \div 9 = 12$   
**Step 2**  $12 \times 10 = 120$   
**Step 3**  $80 + 120 = 200$
- 411  
**Step 1**  $42 \times 10 = 420$   
**Step 2**  $72 \div 8 = 9$   
**Step 3**  $420 - 9 = 411$
- 18  
**Step 1**  $38 - 18 = 20$   
**Step 2**  $90 \times 20 = 1,800$   
**Step 3**  $1,800 \div 100 = 18$

7. 0

- Step 1**  $80 \div 2 = 40$   
**Step 2**  $100 - 40 = 60$   
**Step 3**  $15 \times 4 = 60$   
**Step 4**  $60 - 60 = 0$

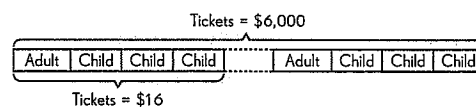
	Order
8. $34 \times 3 \div 6 = 17$	$\times \div$
9. $184 + 27 \times 3 = 265$	$\times +$
10. $100 - 68 + 37 \times 4 = 180$	$\times - +$
11. $19 \times 4 + 84 \div 6 = 90$	$\times \div +$
12. $7 + 47 \times 8 \div 4 - 28 = 73$	$\times \div + -$
13. $30 - (45 - 17) = 2$	$(-) -$
14. $7 \times (14 + 26) \div 8 = 35$	$(+) \times \div$
15. $(73 + 27) - 136 \div 4 = 66$	$(+) \div -$

### Lesson 2.7 (Part 1)

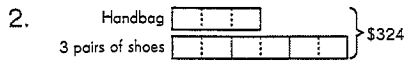
- $1,456 \div 56 = 26$   
 $26 \times \$18 = \$468$   
He collects \$468.
- $230 - 50 = 180$   
 $180 \div 15 = 12$   
 $12 \times \$20 = \$240$   
Each child collected \$240.
- $641 + 490 = 1,131$   
 $1,131 \times 8 = 9,048$   
 $9,048 \div 58 = 156$   
There are 156 origami art pieces in each classroom.
- $487 + 345 = 832$   
 $832 - 40 = 792$   
 $792 \div 36 = 22$   
There are 22 seashells in each box.
- $\$4 + 3 \times \$7 = \$25$   
He paid \$25.

### Lesson 2.7 (Part 2)

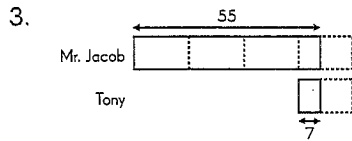
- Cost of tickets for 1 adult and 3 children  
 $= \$7 + 3 \times \$3$   
 $= \$16$



- $\$6,000 \div \$16 = 375$   
 $375 \times 4 = 1,500$   
 1,500 people bought tickets.



9 units  $\rightarrow$  \$324  
 1 unit  $\rightarrow$   $\$324 \div 9 = \$36$   
 3 units  $\rightarrow$   $3 \times \$36 = \$108$   
 The cost of the handbag is \$108.



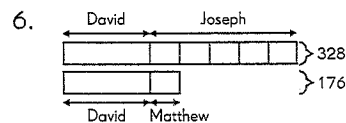
$(55 - 7) \div 3 = 16$   
 $16 - 7 = 9$   
 In 9 years, Mr. Jacob will be 4 times as old as Tony.



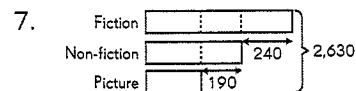
1 unit  $\rightarrow$   $\$3,213 \div 17 = \$189$   
 5 units  $\rightarrow$   $5 \times \$189 = \$945$   
 He pays \$945.



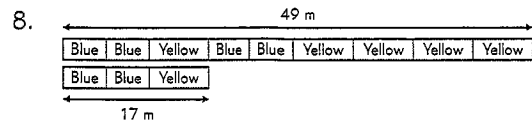
7 units  $\rightarrow$  1,925  
 1 unit  $\rightarrow$   $1,925 \div 7 = 275$   
 4 units  $\rightarrow$   $4 \times 275 = 1,100$   
 Joel collects 1,100 cans.



4 units  $\rightarrow$   $328 - 176 = 152$   
 1 unit  $\rightarrow$   $152 \div 4 = 38$   
 $176 - 38 = 138$   
 David has 138 marbles.

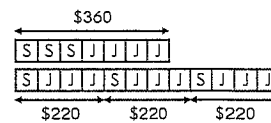


3 units  $\rightarrow$   $2,630 - 240 - 190 - 190 = 2,010$   
 1 unit  $\rightarrow$   $2,010 \div 3 = 670$   
 $670 + 190 = 860$   
 $860 + 240 = 1,100$   
 There are 670 picture books, 860 non-fiction books, and 1,100 fiction books.



Length of 3 yellow banners  
 $= 49 - 17 - 17 = 15$  m  
 Length of 1 yellow banner  $= 15 \div 3 = 5$  m  
 Length of 1 blue banner  $= (17 - 5) \div 2 = 6$  m  
 The length of each blue banner is 6 meters.

9. S: shirt, J: jacket



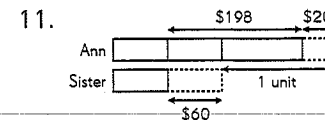
Cost of 3 shirts and 9 jackets  
 $= 3 \times \$220 = \$660$   
 Cost of 5 jackets  $= \$660 - \$360 = \$300$   
 Cost of 1 jacket  $= \$300 \div 5 = \$60$   
 Cost of 1 shirt  $= \$220 - (\$60 \times 3) = \$40$

The cost of each shirt is \$40.

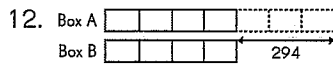
10. 

Day	Amount More Than First Day (g)
1	
2	$1 \times 20$
3	$2 \times 20$
4	$3 \times 20$
5	$4 \times 20$
6	$5 \times 20$
7	$6 \times 20$
Total	$21 \times 20 = 420$

$(1,260 - 420) \div 7 = 120$   
 The hamsters ate 120 grams of food on the first day.



1 unit  $\rightarrow$   $\$198 + \$20 - \$60 = \$158$   
 $\$158 \times 2 - \$20 = \$296$   
 Ann had \$296 at first.



3 units  $\rightarrow$  294

1 unit  $\rightarrow$   $294 \div 3 = 98$

7 units  $\rightarrow$   $7 \times 98 = 686$

There were 686 marbles in Box A at first.

**Put on Your Thinking Cap!**

1. Strategy: Use guess and check

Solution:

No. of correct answers	No. of incorrect answers	Score
15	5	$75 - 10 = 65$
14	6	$70 - 12 = 58$
13	7	$65 - 14 = 51$

She has 13 correct answers.

2. Strategy: Use guess and check

Solution: Estimate the number. Then guess and check your answer.

$20 \times 20 = 400$

$30 \times 30 = 900$

624 is in between 400 and 900. So the two numbers are greater than 20 but less than 30.

The last digit of the product 624 is

$4 \rightarrow 4 \times 6 = 24.$

$24 \times 26 = 624$

The greater number is 26.

3. Thinking skill: Identifying patterns and relationships

Strategy: Look for pattern

Solution: 264; 385; 792; 759; 638; 836

There is a pattern in the answers. To find the answers without using a calculator, follow these steps:

**Step 1** Separate the digits of the first factor.  
 For example,  $69 \times 11 \rightarrow 6 \ 9.$

**Step 2** Add the digits of the first factor.  
 For example,  $6 + 9 = 15.$

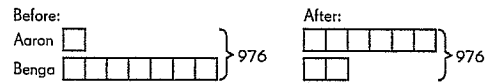
**Step 3** Put the ones digit of the sum from Step 2 between the digits in Step 1.  
 For example, **659.**

**Step 4** Add the tens digit of the sum from Step 2 to the hundreds digit of the number in Step 3.  
 For example, **759.**

4. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:



8 units  $\rightarrow$  976

1 unit  $\rightarrow$   $976 \div 8 = 122$

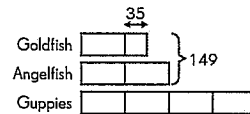
5 units  $\rightarrow$   $5 \times 122 = 610$

Benga should give Aaron 610 cards.

5. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:



3 units  $\rightarrow$   $149 - 35 = 114$

1 unit  $\rightarrow$   $114 \div 3 = 38$

7 units  $\rightarrow$   $7 \times 38 = 266$

266 fish are left in the aquarium.

6. Thinking skill: Comparing

Strategy: Use guess and check

Solution: Common multiples of 5 and 7 are 35, 70, 105, ...

No. of fruits	Cost of oranges	Cost of pears	Difference in amount
35	$(35 \div 7) \times \$2 = \$10$	$(35 \div 5) \times \$3 = \$21$	\$11
70	$(70 \div 7) \times \$2 = \$20$	$(70 \div 5) \times \$3 = \$42$	\$22
105	$(105 \div 7) \times \$2 = \$30$	$(105 \div 5) \times \$3 = \$63$	\$33

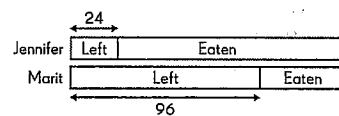
a.  $\$30 + \$63 = \$93$   
 Sophia pays \$93 in all.

b.  $2 \times 105 = 210$   
 She buys 210 oranges and pears altogether.

7. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:



$$\begin{aligned} &\text{Difference in number of crackers left} \\ &= 96 - 24 \\ &= 72 \end{aligned}$$

Difference in number of crackers eaten each day = 6

$$\begin{aligned} \text{Number of days} &= 72 \div 6 \\ &= 12 \end{aligned}$$

$$12 \times 12 + 96 = 240$$

Each of them had 240 crackers at first.

8. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:

Robert	Left	Left	Left	Left	Spent
Damien	Left	Spent			

\$12

$$\begin{aligned} \text{Difference in amount left} &= 3 \times \$12 \\ &= \$36 \end{aligned}$$

$$\begin{aligned} \text{Difference in spending in each day} &= \$6 - \$4 \\ &= \$2 \end{aligned}$$

$$\begin{aligned} \text{Number of days} &= \$36 \div \$2 \\ &= 18 \end{aligned}$$

$$18 \times \$6 + \$12 = \$120$$

Each boy had \$120 at first.

9. Thinking skill: Identifying patterns and relationships

Solution:

$$80 \div (5 + 1) = 13 \text{ R } 2$$

$$80 - 13 = 67$$

The least number of highlighters is 67.

10. Thinking skill: Identifying patterns and relationships

Strategies: Work backward, Use guess and check

Solution:

- a. Work backward to find the greatest factor of 54, 108 and 189.

$$54 = 2 \times 27$$

$$108 = 4 \times 27$$

$$189 = 7 \times 27$$

The length of each piece of cut rope is 27 centimeters.

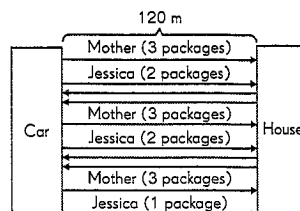
- b.  $2 + 4 + 7 = 13$

Benita gets 13 pieces of cut rope.

11. Thinking skill: Analyzing parts and whole

Strategy: Use a diagram

Solution:



$$10 \times 120 = 1,200$$

The total distance covered was 1,200 meters.

12. Thinking skill: Identifying patterns and relationships

Strategy: Use guess and check

Solution:

$$\text{Greatest: } 542 \times 63 = 34,146$$

$$\text{Least: } 356 \times 24 = 8,544$$

## Chapter 3

### Lesson 3.1

1. Answers vary.

$$\text{Samples: } \frac{2}{8}; \frac{3}{12}$$

2. Answers vary.

$$\text{Samples: } \frac{4}{6}; \frac{6}{9}$$

3. Answers vary.

$$\text{Samples: } \frac{8}{18}; \frac{12}{27}$$

4. Answers vary.

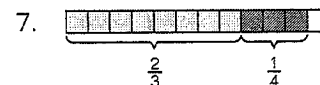
$$\text{Samples: } \frac{6}{10}; \frac{9}{15}$$

5. Answers vary.

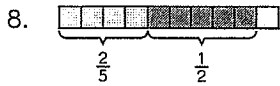
$$\text{Samples: } \frac{12}{14}; \frac{18}{21}$$

6. Answers vary.

$$\text{Samples: } \frac{10}{16}; \frac{15}{24}$$



$$\begin{aligned} \frac{2}{3} + \frac{1}{4} &= \frac{8}{12} + \frac{3}{12} \\ &= \frac{11}{12} \end{aligned}$$



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

$$= \frac{9}{10}$$

9.  $1; \frac{31}{40}$

10.  $\frac{1}{2}; \frac{13}{30}$

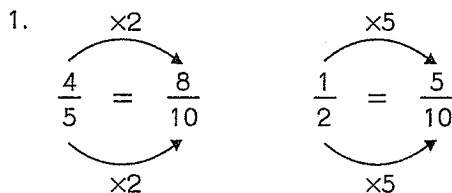
11.  $1\frac{1}{2}; 1\frac{9}{20}$

12.  $2; 1\frac{7}{15}$

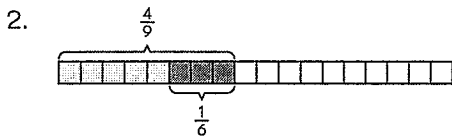
13.  $1; 1\frac{1}{24}$

14.  $2; 1\frac{17}{28}$

### Lesson 3.2



$$\frac{4}{5} - \frac{1}{2} = \frac{8}{10} - \frac{5}{10} = \frac{3}{10}$$



$$\frac{4}{9} - \frac{1}{6} = \frac{8}{18} - \frac{3}{18} = \frac{5}{18}$$

3.  $\frac{1}{2}; \frac{7}{15}$

4.  $\frac{1}{2}; \frac{1}{12}$

5.  $0; \frac{1}{72}$

6.  $\frac{1}{2}; \frac{1}{3}$

7.  $\frac{1}{2}; \frac{11}{24}$

8.  $\frac{1}{2}; \frac{7}{18}$

### Lesson 3.3

1.  $\frac{3}{5}$

2.  $\frac{5}{2}; 2\frac{1}{2}$

3.  $\frac{3}{25}$

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

5.  $7\frac{5}{7}$

6.  $5\frac{1}{3}$

7.  $4\frac{1}{2}$

8.  $3\frac{1}{3}$

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

10.  $4\frac{2}{3}$

### Lesson 3.4

1. 0.9

2. 0.8

3. 0.15

4. 0.36

5. 2.3

6. 2.5

7. 2.75

8. 3.6

9. 0.68

10. 3.75

11. 2.6

12. 3.875

13. 4.35

14. 5.75

15.  $\$15 \div 6 = \$2.50$

She pays \$2.50 for each notebook.

### Lesson 3.5

1.  $5\frac{7}{8}$

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

3.  $5\frac{13}{24}$

4.  $3\frac{11}{36}$

5.  $7\frac{19}{24}$

6.  $6\frac{11}{30}$

7.  $3\frac{1}{2}$

8.  $10\frac{1}{2}$

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

10. 7

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

12. 19

### Lesson 3.6

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

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

3.  $2\frac{7}{20}$

4.  $4\frac{5}{24}$

5.  $\frac{13}{21}$

6.  $1\frac{7}{18}$

7. 2

8.  $4\frac{1}{2}$

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

10. 2

11. 2

12.  $1\frac{1}{2}$

### Lesson 3.7

1. a.  $28 \div 8 = 3\frac{1}{2}$

It takes  $3\frac{1}{2}$  minutes to play 1 song.

b.  $3\frac{1}{2} = 3.5$

It takes 3.5 minutes to play 1 song.



2.  $\frac{1}{4} + \frac{1}{6} = \frac{5}{12}$

$1 - \frac{5}{12} = \frac{7}{12}$

$\frac{7}{12}$  of the participants have black hair.

3.  $3\frac{7}{10} + 2\frac{3}{4} = 6\frac{9}{20}$

$6\frac{9}{20} - 4\frac{3}{5} = 1\frac{17}{20} = 1.85$

1.85 pounds of flour are left.

4.  $2\frac{3}{4} - \frac{5}{8} = 2\frac{1}{8}$

$2\frac{3}{4} + 2\frac{1}{8} = 4\frac{7}{8} = 4.875$

She uses 4.875 meters of cloth in all.

5.  $7 \times \frac{1}{6} = \frac{7}{6}$

$1\frac{8}{9} - \frac{7}{6} = \frac{13}{18}$

$\frac{13}{18}$  liter of apple juice is left after a week.

6.  $\frac{1}{8} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{5}{8}$

$1 - \frac{5}{8} = \frac{3}{8}$

$\frac{3}{8}$  of the loaf of bread is left.

7.  $\frac{2}{9} + \frac{1}{6} + \frac{2}{6} = \frac{13}{18}$

$1 - \frac{13}{18} = \frac{5}{18}$

$\frac{5}{18}$  of the book is not read.

8. a.  $1\frac{2}{3} + \frac{7}{8} = 2\frac{13}{24}$

Jamal spent  $2\frac{13}{24}$  hours watching television and helping with housework.

b.  $1\frac{4}{5} - \frac{7}{8} = \frac{37}{40}$

Jamal spent  $\frac{37}{40}$  hour more on the nap.

9.  $2\frac{3}{5} + \frac{3}{4} = 3\frac{7}{20}$

$3\frac{7}{20} + 2\frac{3}{5} = 5\frac{19}{20}$

They buy  $5\frac{19}{20}$  pounds of meat altogether.

10.  $1\frac{7}{10} - \frac{1}{4} = 1\frac{9}{20}$

$1\frac{7}{10} + 1\frac{9}{20} = 3\frac{3}{20}$

The total weight of the two boxes is  $3\frac{3}{20}$  pounds.

11.  $4\frac{3}{5} - \frac{3}{4} = 3\frac{17}{20}$

$4\frac{3}{5} + 4\frac{3}{5} + 3\frac{17}{20} + 3\frac{17}{20} = 16\frac{9}{10}$

The perimeter of the storeroom is  $16\frac{9}{10}$  meters.

12.  $4\frac{1}{5} + 3\frac{2}{5} = 7\frac{3}{5}$

$7\frac{3}{5} - 2\frac{1}{2} = 5\frac{1}{10}$

There were  $5\frac{1}{10}$  liters of water in the tank at first.

**Put on Your Thinking Cap!**

1. Thinking skill: Comparing

Solution:

Length of each piece of rope P  
 $= 2 \div 3 = \frac{2}{3}$  m

Length of each piece of rope Q  
 $= \frac{2}{3} + \frac{2}{5}$   
 $= 1\frac{1}{15}$  m

Length of rope Q =  $1\frac{1}{15} + 1\frac{1}{15} + 1\frac{1}{15}$   
 $= 3\frac{1}{5}$

The length of rope Q is  $3\frac{1}{5}$  meters.

2. Thinking skill: Comparing

Strategy: Use a model

Solution:



Vivian has 12 units of money and Lionel has 3 units.

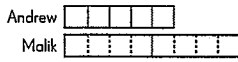
$12 \div 3 = 4$

Vivian's amount of money is 4 times Lionel's amount of money.

3. Thinking skill: Comparing

Strategy: Use a model

Solution:



Andrew's savings is  $\frac{5}{8}$  of Malik's savings.

4. Thinking skill: Identifying patterns and relationships

Strategy: Look for pattern

Solution:

$$\frac{1}{100} + \frac{2}{100} + \dots + \frac{49}{100} + \frac{50}{100} + \frac{51}{100} + \dots + \frac{98}{100} + \frac{99}{100}$$

The sum of each pair of fractions is 1.

Number of such pairs of fractions

$$= 98 \div 2$$

$$= 49$$

$$\text{Value} = 49 + \frac{50}{100}$$

$$= 49\frac{1}{2}$$

5. Thinking skill: Identifying patterns and relationships

Strategy: Look for pattern

Solution:

Look for pairs of numbers that give a sum of 11.

$$1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$$

$$= 5 \times 11$$

$$= 55$$

Value

$$= \frac{1}{99} \times 55$$

$$= \frac{5}{9}$$

6. Thinking skill: Identifying patterns and relationships

Strategy: Look for pattern

Solution:

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

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

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} = \frac{4}{5}$$

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{28 \times 29}$$

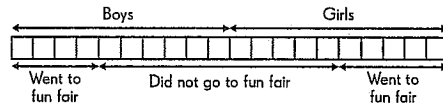
$$+ \frac{1}{29 \times 30} = \frac{29}{30}$$

7. Thinking skill: Comparing

Strategy: Use a model

Solution:

$$\frac{2}{5} = \frac{4}{10}; \frac{1}{2} = \frac{5}{10}$$

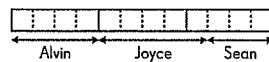


$\frac{11}{20}$  of the students in the class did not go to the fun fair.

8. Thinking skill: Comparing

Strategy: Use a model

Solution:



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

Sean gets  $\frac{1}{4}$  of the marbles.

## Chapter 4

### Lesson 4.1

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

2.  $\frac{3}{4}, \frac{5}{7}, \frac{15}{28}$

3.  $\frac{15}{22}$

4.  $\frac{7}{18}$

5.  $\frac{5}{8}$

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

7.  $\frac{1}{5}$

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

### Lesson 4.2

1.  $\frac{2}{7} \times \frac{3}{4} = \frac{3}{14}$

$$\frac{3}{14} \times 56 = 12$$

Rahul gets 12 paper clips.

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

$$\frac{1}{3} \times \frac{9}{10} = \frac{3}{10}$$

$\frac{3}{10}$  hour is left.

3. **Method 1**



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

$\frac{1}{2}$  of his savings are left.

**Method 2**

$$1 - \frac{1}{6} = \frac{5}{6}$$

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

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

$\frac{1}{2}$  of his savings are left.

4. Fraction of caps that are not red or blue

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

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

Fraction of caps that are green

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

$$= \frac{3}{14}$$

$$3 \text{ units} \rightarrow 27$$

$$1 \text{ unit} \rightarrow 27 \div 3 = 9$$

$$14 \text{ units} \rightarrow 14 \times 9 = 126$$

There are 126 caps altogether.

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

$$\frac{7}{8} \times \frac{4}{5} = \frac{7}{10}$$

$$\frac{7}{10} \times 30 = 21$$

She receives 21 text messages.

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

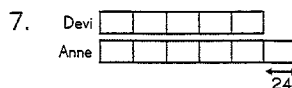
$$\frac{4}{9} \times \frac{3}{5} = \frac{4}{15}$$

$$\frac{3}{5} - \frac{4}{15} = \frac{5}{15} = \frac{1}{3}$$

$$1 \text{ unit} \rightarrow 15$$

$$3 \text{ units} \rightarrow 3 \times 15 = 45$$

Sam makes 45 bread rolls.



$$6 \times 24 = 144$$

Anne has 144 cards.

8. **Method 1**

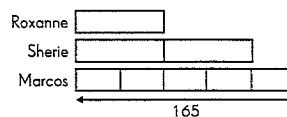
$$\frac{4}{5} \times 165 = 132$$

$$132 \div 2 = 66$$

$$165 - 66 = 99$$

Marcos has 99 more beads than Roxanne.

**Method 2**



$$5 \text{ units} \rightarrow 165$$

$$1 \text{ unit} \rightarrow 165 \div 5 = 33$$

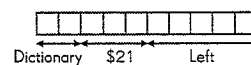
$$3 \text{ units} \rightarrow 3 \times 33 = 99$$

Marcos has 99 more beads than Roxanne.

9.  $\frac{1}{5} = \frac{2}{10}$

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

$$1 - \frac{1}{5} - \frac{1}{2} = \frac{3}{10}$$

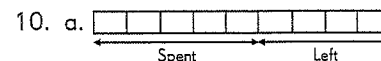


$$3 \text{ units} \rightarrow \$21$$

$$1 \text{ unit} \rightarrow \$21 \div 3 = \$7$$

$$5 \text{ units} \rightarrow 5 \times \$7 = \$35$$

Ken has \$35 left.

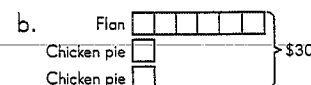


$$4 \text{ units} \rightarrow \$24$$

$$1 \text{ unit} \rightarrow \$24 \div 4 = \$6$$

$$5 \text{ units} \rightarrow 5 \times \$6 = \$30$$

She spends \$30.

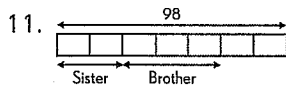


$$8 \text{ units} \rightarrow \$30$$

$$1 \text{ unit} \rightarrow \$30 \div 8 = \$3.75$$

$$6 \text{ units} \rightarrow 6 \times \$3.75 = \$22.50$$

The flan costs \$22.50.

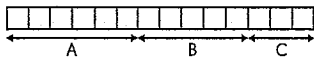


7 units  $\rightarrow$  98  
 1 unit  $\rightarrow$   $98 \div 7 = 14$   
 5 units  $\rightarrow$   $5 \times 14 = 70$  (gave away)  
 $98 + 70 = 168$   
 Melody must buy 168 more stickers.

12.  $1 - \frac{3}{7} = \frac{4}{7}$

Fraction of biscuits in container B  
 $= \frac{5}{8} \times \frac{4}{7}$   
 $= \frac{5}{14}$

Fraction of biscuits in container C  
 $= 1 - \frac{3}{7} - \frac{5}{14}$   
 $= \frac{3}{14}$



Container A has 3 more units than container C.  
 3 units  $\rightarrow$  21  
 1 unit  $\rightarrow$   $21 \div 3 = 7$   
 14 units  $\rightarrow$   $14 \times 7 = 98$   
 Jacky bakes 98 biscuits.

#### Lesson 4.3

- |                    |                     |
|--------------------|---------------------|
| 1. $1\frac{1}{8}$  | 2. $1\frac{1}{5}$   |
| 3. $1\frac{1}{3}$  | 4. $1\frac{1}{14}$  |
| 5. $\frac{9}{14}$  | 6. $\frac{9}{10}$   |
| 7. 6               | 8. $3\frac{3}{16}$  |
| 9. $5\frac{3}{5}$  | 10. $2\frac{2}{3}$  |
| 11. $2\frac{2}{9}$ | 12. $2\frac{7}{16}$ |

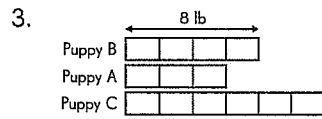
#### Lesson 4.4

- |                   |       |
|-------------------|-------|
| 1. $7\frac{3}{5}$ | 2. 22 |
| 3. $8\frac{2}{3}$ | 4. 39 |

- |                     |                     |
|---------------------|---------------------|
| 5. 105              | 6. $20\frac{2}{3}$  |
| 7. $62\frac{1}{3}$  | 8. $38\frac{6}{7}$  |
| 9. $30\frac{2}{3}$  | 10. $33\frac{3}{4}$ |
| 11. $46\frac{1}{5}$ | 12. $25\frac{1}{2}$ |

#### Lesson 4.5

1.  $1\frac{4}{5} \times 7 = 12\frac{3}{5}$   
 $12\frac{3}{5}$  liters are about 13 liters.  
 $13 \div 2 = 6\frac{1}{2}$   
 Mrs. Smith needs to buy 7 bottles every week.
2.  $1\frac{3}{4} \times 9 = 15\frac{3}{4}$   
 $15\frac{3}{4}$  meters are about 16 meters.  
 Lily needs 16 meters of ribbon.

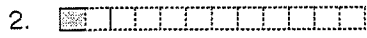


4 units  $\rightarrow$  8 lb  
 1 unit  $\rightarrow$  2 lb  
 6 units  $\rightarrow$  12 lb  
 The weight of puppy C is 12 pounds.

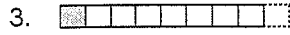
4. Area of flowerbed  $= 3\frac{3}{4} \times 2$   
 $= 7\frac{1}{2} \text{ m}^2$   
 Area of flowerbed with border  
 $= (3\frac{3}{4} + \frac{1}{2} + \frac{1}{2}) \times (2 + \frac{1}{2} + \frac{1}{2})$   
 $= 4\frac{3}{4} \times 3$   
 $= 14\frac{1}{4} \text{ m}^2$   
 Area of border  $= 14\frac{1}{4} - 7\frac{1}{2}$   
 $= 6\frac{3}{4} \text{ m}^2$   
 Cost  $= 6\frac{3}{4} \times \$20$   
 $= \$135$   
 Uncle James has to pay \$135.

### Lesson 4.6

1.  $\frac{1}{6}, \frac{1}{6}$



$\frac{1}{12}$



$\frac{1}{9}$

4.  $\frac{2}{15}$

5.  $\frac{1}{24}$

6.  $\frac{3}{10}$

7.  $\frac{1}{18}$

8.  $\frac{5}{12} \div 5 = \frac{1}{12}$

There is  $\frac{1}{12}$  liter of paint in each pot.

9.  $\frac{1}{2} \div 5 = \frac{1}{10}$

Each girl has  $\frac{1}{10}$  of the loaf of bread.

10.  $\frac{9}{10} \div 6 = \frac{3}{20}$

$\frac{3}{20} + \frac{3}{20} = \frac{3}{10}$

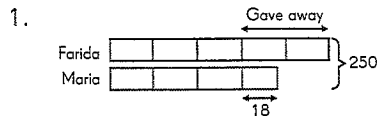
The total length of 2 of the pieces is  $\frac{3}{10}$  meter.

11.  $1 - \frac{1}{5} = \frac{4}{5}$

$\frac{4}{5} \div 3 = \frac{4}{15}$

Each friend got  $\frac{4}{15}$  of the bag of nuts.

### Lesson 4.7



#### Method 1

8 units  $\rightarrow 250 - 18 = 232$

1 unit  $\rightarrow 232 \div 8 = 29$

$3 \times 29 + 18 = 105$

Maria had 105 beads at first.

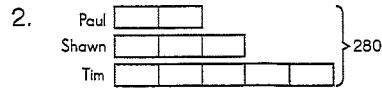
#### Method 2

$250 - 18 = 232$

$\frac{3}{8} \times 232 = 87$

$87 + 18 = 105$

Maria had 105 beads at first.



10 units  $\rightarrow 280$

1 unit  $\rightarrow 280 \div 10 = 28$

3 units  $\rightarrow 3 \times 28 = 84$

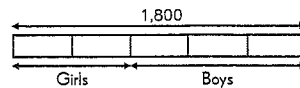
Tim has 84 more postcards than Paul.

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

Number of boys who do not take part in sports activities

$= \frac{4}{9} \times 540$

$= 240$



Number of boys in school

$= \frac{3}{5} \times 1,800$

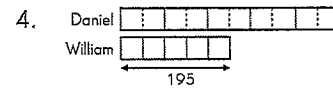
$= 1,080$

Number of boys who take part in sports activities

$= 1,080 - 240$

$= 840$

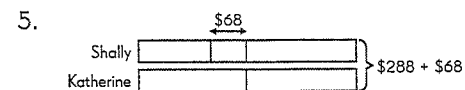
840 boys take part in sports activities.



5 units  $\rightarrow 195$

10 units  $\rightarrow 195 \times 2 = 390$

Daniel has 390 marbles.

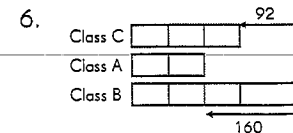


4 units  $\rightarrow \$288 + \$68 = \$356$

1 unit  $\rightarrow \$356 \div 4 = \$89$

$\$89 - \$68 = \$21$

Shally had \$21 at first.

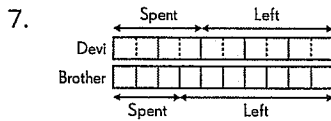


1 unit  $\rightarrow 160 - 92 = 68$

2 units  $\rightarrow 2 \times 68 = 136$

$136 + 160 = 296$

Class B folds 296 paper cranes.



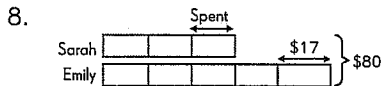
$$6 + 7 = 13$$

$$13 \text{ units} \rightarrow \$78$$

$$1 \text{ unit} \rightarrow \$78 \div 13 = \$6$$

$$7 \text{ units} \rightarrow 7 \times \$6 = \$42$$

They spent \$42 altogether.



$$7 \text{ units} \rightarrow \$80 - \$17 = \$63$$

$$1 \text{ unit} \rightarrow \$63 \div 7 = \$9$$

$$\$9 + \$17 = \$26$$

Emily had \$26 more than Sarah at first.

9. Number of girls =  $\frac{3}{8} \times 40$   
 $= 15$

$$\text{Number of boys} = 40 - 15$$

$$= 25$$

$$(15 \times 2) + (25 \times 1) = 55$$

$$55 \text{ units} \rightarrow 220$$

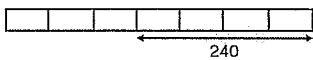
$$1 \text{ unit} \rightarrow 220 \div 55 = 4$$

$$(15 \times 2) - 25 = 5$$

$$5 \text{ units} \rightarrow 5 \times 4 = 20$$

All the girls receive 20 more balloons than all the boys.

10. Number of nickels =  $1,200 \div 5$   
 $= 240$

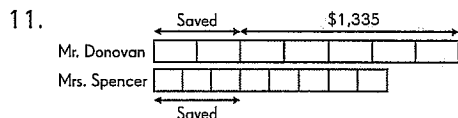


$$4 \text{ units} \rightarrow 240$$

$$1 \text{ unit} \rightarrow 240 \div 4 = 60$$

$$7 \text{ units} \rightarrow 7 \times 60 = 420$$

There are 420 coins in the piggy bank.



Mr. Donovan:

$$5 \text{ units} \rightarrow \$1,335$$

$$1 \text{ unit} \rightarrow \$1,335 \div 5 = \$267$$

$$2 \text{ units} \rightarrow 2 \times \$267 = \$534$$

Mrs. Spencer:

$$3 \text{ units} \rightarrow \$534$$

$$1 \text{ unit} \rightarrow \$534 \div 3 = \$178$$

$$8 \text{ units} \rightarrow 8 \times \$178 = \$1,424$$

Mrs. Spencer's paycheck is \$1,424.



$$40 \text{ units} \rightarrow \$12$$

$$5 \text{ units} \rightarrow \$12 \div 8 = \$1.50$$

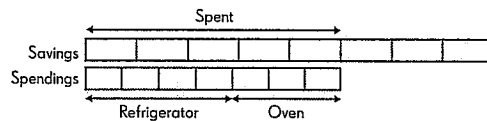
The cost of 1 kilogram of sugar was \$1.50.

### Put on Your Thinking Cap!

1. Thinking skill: Comparing

Strategy: Use a model

Solution:



$$1 \text{ unit} \rightarrow \$280$$

$$7 \text{ units} \rightarrow 7 \times \$280 = \$1,960$$

$$5 \text{ units} \rightarrow \$1,960$$

$$1 \text{ unit} \rightarrow \$1,960 \div 5 = \$392$$

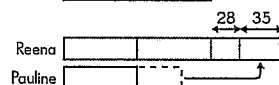
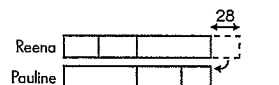
$$8 \text{ units} \rightarrow 8 \times \$392 = \$3,136$$

Mrs. Tan's savings was \$3,136 at first.

2. Thinking skill: Comparing

Strategy: Use a model

Solution:



$$1 \text{ unit} \rightarrow 28 + 35 = 63$$

$$3 \text{ units} \rightarrow 3 \times 63 = 189$$

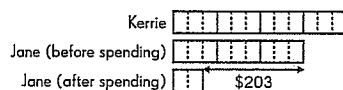
$$189 - 35 = 154$$

Reena has 154 bookmarks.

3. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:



$$\frac{3}{4} = \frac{9}{12}, \frac{1}{6} = \frac{2}{12}$$

7 units  $\rightarrow$  \$203  
 1 unit  $\rightarrow$   $\$203 \div 7 = \$29$   
 12 units  $\rightarrow$   $12 \times \$29 = \$348$   
 Kerrie had \$348.

4. Strategy: Use a model, Use before-after concept

Solution:

Before:

Number of girls  $= \frac{3}{5} \times 120 = 72$   
 Number of boys  $= 120 - 72 = 48$

After:



3 units  $\rightarrow$  48  
 1 unit  $\rightarrow$   $48 \div 3 = 16$   
 4 units  $\rightarrow$   $4 \times 16 = 64$   
 $72 - 64 = 8$

8 girls left the library.

5. Thinking skill: Comparing

Strategy: Use before-after concept

Solution:

Before:

Adults  $\rightarrow$  3 units } Difference  
 Children  $\rightarrow$  5 units }  $= 2$  units

After:

Adults  $\rightarrow$  2 units  $\times$  2 = 4 units } Difference  
 Children  $\rightarrow$  3 units  $\times$  2 = 6 units }  $= 2$  units

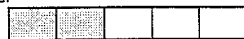
4 units  $-$  3 units = 1 unit  
 1 unit  $\rightarrow$  6  
 8 units  $\rightarrow$   $8 \times 6 = 48$

48 people were on the bus at first.

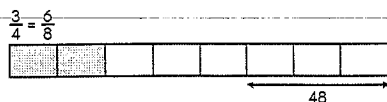
6. Strategies: Use a model, Use before-after concept

Solution:

Before:



After:



3 units  $\rightarrow$  48  
 1 unit  $\rightarrow$   $48 \div 3 = 16$   
 5 units  $\rightarrow$   $5 \times 16 = 80$

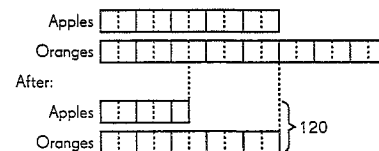
There were 80 counters in the box at first.

7. Thinking skill: Comparing

Strategies: Use a model, Use before-after concept

Solution:

Before:



15 units  $\rightarrow$  120  
 1 unit  $\rightarrow$   $120 \div 15 = 8$   
 26 units  $\rightarrow$   $26 \times 8 = 208$

There were 208 apples and oranges at the stand at first.

8. Thinking skill: Comparing

Strategy: Use before-after concept

Solution:

After:

In puzzle  $\rightarrow$  13 units }  
 Not in puzzle  $\rightarrow$  7 units } Total = 20 units

Before:

In puzzle  $\rightarrow$  2 units  $\times$  4 = 8 units }  
 Not in puzzle  $\rightarrow$  3 units  $\times$  4 = 12 units } Total = 20 units

12 units  $-$  7 units = 5 units  
 5 units  $\rightarrow$  300  
 1 unit  $\rightarrow$   $300 \div 5 = 60$   
 20 units  $\rightarrow$   $20 \times 60 = 1,200$

The jigsaw puzzle consists of 1,200 pieces.

9. Thinking skill: Analyzing parts and whole

Strategy: Work backward

Solution:

$720 \div 2 = 360$

Each had 360 stamps in the end.

	Samuel	Pat
Finally	360	$360 (\frac{2}{3} \text{ left})$
Pat to Samuel	$360 - 180 = 180$ $(\frac{3}{4} \text{ left})$	$360 \div 2 = 180$ $360 + 180 = 540$
Samuel to Pat	$180 \div 3 = 60$ $180 + 60 = 240$	$540 - 60 = 480$

Samuel had 240 stamps at first.

10. Thinking skill: Analyzing parts and whole

Strategy: Work backward

Solution:

Stage	Work	A	B	C
Finally		18 gal	18 gal	18 gal
C to A	Pail C: $18 \div 3 \times 4 = 24$ Pail A: $18 - 6 = 12$	12 gal	18 gal	24 gal
B to C	Pail B: $18 \div 3 \times 4 = 24$ Pail C: $24 - 6 = 18$	12 gal	24 gal	18 gal
A to B	Pail A: $12 \div 3 \times 4 = 16$ Pail B: $24 - 4 = 20$	16 gal	20 gal	18 gal

Pail A had 16 gallons of water,  
pail B had 20 gallons of water and  
pail C had 18 gallons of water at first.

### Test Prep for Chapters 1 to 4

1. C    2. C    3. A    4. C  
5. D    6. B    7. D    8. B  
9. A    10. C

11. 2,467,058                      12. 710,000  
13. 203,485  
14. 3,190,500    3,090,500    2,090,500  
    319,500    290,500

15. 16                                      16. 424  
17.  $4\frac{7}{12}$                                   18. 144  
19. 5.925                                20.  $\frac{21}{40}$

21.   
3 units  $\rightarrow$  \$2,055  
1 unit  $\rightarrow$   $\$2,055 \div 3 = \$685$   
4 units  $\rightarrow$   $4 \times \$685 = \$2,740$   
Mr. Graham had \$2,740.

22.   
Difference in quantity left =  $4 \times 9$   
= 36

$$\begin{aligned} \text{Difference in quantity eaten each day} &= 8 - 5 \\ &= 3 \end{aligned}$$

$$\begin{aligned} \text{Number of days} &= 36 \div 3 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{Number of cashews} &= 12 \times 8 + 4 \\ &= 100 \end{aligned}$$

Each child had 100 cashews at first.

23.   
Model cars  $3 \times \$38$  } \$834

$$\begin{aligned} \text{Cost of 1 model plane} &= \$52 - \$14 \\ &= \$38 \end{aligned}$$

$$\begin{aligned} \text{Cost of 1 model car and 1 model plane} &= \$52 + \$38 \\ &= \$90 \end{aligned}$$

$$\$834 - 3 \times \$38 = \$720$$

$$\begin{aligned} \text{Number of model cars} &= \$720 \div \$90 \\ &= 8 \end{aligned}$$

$$\begin{aligned} \text{Number of model planes} &= 8 + 3 \\ &= 11 \end{aligned}$$

He buys 11 model planes.

### Chapter 5

#### Lesson 5.1

1.  $w + 8$                                       2.  $a - 10$   
3.  $p + \frac{3}{4}$                                       4.  $5 - 6y$   
5.  $6g$     6.  $\frac{3k}{2}$   
7.  $4h$     8.  $5s - 12$   
9.  $7b + 8$                                       10.  $\frac{5d}{4}$   
11. 7    12. 13  
13. 31    14. 60  
15. 14    16. 37  
17. 7    18. 5  
19. 10    20. 9
21. Mrs. Smith pays  $5x$  dollars.  
22. Alyssa has  $(6p - 15)$  dollars more than her brother.  
23.  $2 \times 7 = 14$   
     $(5m - 14)$  liter of milk is left.  
24. Each of them has  $\frac{(3y + 8)}{2}$  comics.



25.  $k$  bottles of pasta sauce cost  
 $k \times \$4 = \$4k$ .  
 He received  $\$(10 - 4k)$  change.
26. The cost of 3 such books is  $\frac{3y}{8}$  dollars.
27. John has  $(y - 20)$  stickers for his sisters.  
 Each sister gets  $\left(\frac{y - 20}{2}\right)$  stickers.
28. Kenny has  $(m + 10)$  fish.  
 He buys another  $(20 + 30) = 50$  fish.  
 Kenny has  $(m + 60)$  fish now.
29. The shorter piece is  $\left(\frac{g - 10}{2}\right)$  inches long.

### Lesson 5.2

- |               |               |
|---------------|---------------|
| 1. $3g$       | 2. $10w$      |
| 3. $5a$       | 4. $8b$       |
| 5. $7h$       | 6. $6k$       |
| 7. $11d$      | 8. $15n$      |
| 9. $12x - 4$  | 10. $6 + 10g$ |
| 11. $4n + 5$  | 12. $6d - 5$  |
| 13. $12 + 3k$ | 14. $7w + 3$  |
| 15. $4 + 13h$ | 16. $5 + 3m$  |
| 17. $5 + 3s$  | 18. $4n + 13$ |

### Lesson 5.3

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. $<$ | 2. $=$ | 3. $>$ | 4. $>$ |
| 5. $>$ | 6. $<$ | 7. $>$ | 8. $=$ |
| 9. 7   | 10. 4  | 11. 6  | 12. 7  |
| 13. 8  | 14. 9  |        |        |

### Lesson 5.4

1. a. Joan's brother is  $(4y - 28)$  years old.  
 b.  $4 \times 12 - 28 = 20$   
 Her brother is 20 years old.
2. a. The cost of renting the car is  $\$(120 + 18n)$ .  
 b.  $\$(120 + 18 \times 8) = \$264$   
 The cost of renting the car is \$264.
3. a.  $\$5 = 500$  cents  
 He spends  $7g$  cents in one week.  
 He has  $(500 - 7g)$  cents left.
- b.  $7g$  cents =  $\frac{7g}{100}$  dollars  
 He has  $\left(5 - \frac{7g}{100}\right)$  dollars left.

4. a.  $10w - 2w = 8w$   
 $8w \div 2 = 4w$   
 Cindy's age is  $4w$  years.
- b. If  $w = 4$ ,  
 $4w = 4 \times 4 = 16$   
 Cindy is 16 years old.
5. a. Patrick paid  $3p$  dollars.  
 b.  $3p = 36$   
 $p = 12$   
 When  $p = 12$ , Patrick and Amanda pay the same amount of money for the model planes.
6. a.  $4k + 6 = 4 \times 5 + 6 = 26$   
 $6k - 2 = 6 \times 5 - 2 = 28$   
 $26 < 28$   
 Nancy has a shorter ribbon.
- b.  $6k - 2 = 4k + 6$   
 $2k = 8$   
 $k = 4$   
 When  $k = 4$ , they will have the same length of ribbon.
7.  $50b - 28b = 22b$   
 $28b > 22b$   
 No, he does not save more than he spends.
8. Benny has  $3p$  game cards.  
 Together Anne and Benny have  
 $(p + 3p) = 4p$  game cards.  
 If  $4p > 30$ , then  $p$  must be 8, 9, 10, ....  
 The least value of  $p$  is 8 so that Anne and Benny together have more game cards than Colin.

### Put on Your Thinking Cap!

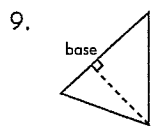
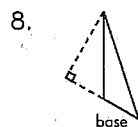
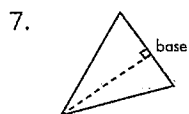
1. Thinking skill: Analyzing parts and whole  
 Strategy: Solve part of the problem  
 Solution:  
 $5 \times p = 5p$   
 $200 \text{ g} \times 5 = 1,000 \text{ g} = 1 \text{ kg}$   
 The total mass of the crackers in 5 boxes is  $(5p - 1)$  kilograms.
2. Thinking skill: Analyzing parts and whole  
 Strategy: Solve part of the problem  
 Solution:  
 a. Mr. Johnson will pay  $\$(2x + 30)$ .  
 b.  $2 \times 200 + 30 = 430$   
 He will have to pay \$430.

3. Thinking skill: Analyzing parts and whole  
 Strategy: Solve part of the problem  
 Solution:  
 a. The remaining stickers are shared by 3 people.  
 She gives each brother  $\frac{(80 - 5m)}{3}$  stickers.  
 b. If  $m = 4$ ,  
 $\frac{(80 - 5 \times 4)}{3} = 20$   
 Each brother gets 20 stickers.
4. Thinking skill: Analyzing parts and whole  
 Strategy: Solve part of the problem  
 Solution:  
 a. Jerry's allowance =  $3k$  dollars  
 Danny's allowance =  $(3k + 20)$  dollars  
 $k + 3k + 3k + 20 = 7k + 20$   
 Their total monthly allowance is  $(7k + 20)$  dollars.  
 b.  $7 \times \$18 + \$20 = \$146$   
 Their total monthly allowance is \$146.

## Chapter 6

### Lesson 6.1

1.  $AD$                       2.  $BE$   
 3.  $CF$                       4.  $QR$   
 5.  $PR$                       6.  $PQ$



11. Base =  $KL$ , Height =  $LM$  or  
 Base =  $LM$ , Height =  $KL$   
 12. Base =  $KL$ , Height =  $VM$  or  
 Base =  $LM$ , Height =  $UK$

### Lesson 6.2

1.  $324 \text{ in.}^2$                       2.  $1,350 \text{ cm}^2$   
 3.  $346\frac{1}{2} \text{ ft}^2$                       4.  $962\frac{1}{2} \text{ m}^2$   
 5.  $891 \text{ cm}^2$                       6.  $900 \text{ in.}^2$   
 7.  $1,058 \text{ cm}^2$                       8.  $1,944 \text{ ft}^2$

### Put on Your Thinking Cap!

1. Thinking skill: Spatial visualization  
 Strategy: Simplify the problem  
 Solution:  
 Area of  $ABC = \frac{1}{2} \times 72 \times 96$   
 $= 3,456 \text{ in.}^2$   
 Area of  $ADC = \frac{1}{2} \times 72 \times 48$   
 $= 1,728 \text{ in.}^2$   
 Shaded area =  $3,456 - 1,728$   
 $= 1,728 \text{ in.}^2$
2. Thinking skill: Spatial visualization  
 Strategy: Simplify the problem  
 Solution:  
 Area of  $ABCD = 60 \times 60$   
 $= 3,600 \text{ cm}^2$   
 Area of  $ABC = \frac{1}{2} \times 60 \times 18$   
 $= 540 \text{ cm}^2$   
 Shaded area =  $3,600 - 2 \times 540$   
 $= 2,520 \text{ cm}^2$
3. Thinking skill: Spatial visualization  
 Strategy: Simplify the problem  
 Solution:

#### Method 1

Base of 1 triangle =  $60 \div 5$   
 $= 12 \text{ cm}$   
 Height of 1 triangle =  $30 \div 2$   
 $= 15 \text{ cm}$   
 Area of 5 triangles =  $5 \times \frac{1}{2} \times 12 \times 15$   
 $= 450 \text{ cm}^2$   
 Area of remaining paper  
 $= 60 \times 30 - 450$   
 $= 1,350 \text{ cm}^2$

#### Method 2

Since the cut triangles make up a quarter of the paper,  
 area of the remaining paper  
 $= \frac{3}{4} \times 60 \times 30$   
 $= 1,350 \text{ cm}^2$

4. Thinking skill: Spatial visualization

Strategy: Simplify the problem

Solution:

$$\begin{aligned}\text{Area of } BCD &= \frac{1}{2} \times 24 \times 10 \\ &= 120 \text{ cm}^2\end{aligned}$$

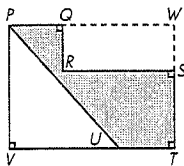
$$\begin{aligned}\text{Area of } BDE &= \frac{1}{2} \times 26 \times 6 \\ &= 78 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Shaded area} &= 120 - 78 \\ &= 42 \text{ cm}^2\end{aligned}$$

5. Thinking skill: Spatial visualization

Strategy: Simplify the problem

Solution:



$$\begin{aligned}\text{Area of } PWTU &= 36 \times 28 \\ &= 1,008 \text{ ft}^2\end{aligned}$$

$$\begin{aligned}\text{Area of } PVU &= \frac{1}{2} \times 24 \times 28 \\ &= 336 \text{ ft}^2\end{aligned}$$

$$\begin{aligned}\text{Area of } QWSR &= 24 \times 10 \\ &= 240 \text{ ft}^2\end{aligned}$$

$$\begin{aligned}\text{Shaded area} &= 1,008 - 336 - 240 \\ &= 432 \text{ ft}^2\end{aligned}$$

6. Thinking skill: Spatial visualization

Strategy: Simplify the problem

Solution:

$$\begin{aligned}CD &= 2 \times 16 \\ &= 32 \text{ cm}\end{aligned}$$

$$\begin{aligned}AB &= (42 \div 2) \times 3 \\ &= 63 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Area of } ABC &= \frac{1}{2} \times 63 \times 32 \\ &= 1,008 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of } BEG &= \frac{1}{2} \times 42 \times 16 \\ &= 336 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Shaded area} &= 1,008 - 336 \\ &= 672 \text{ cm}^2\end{aligned}$$

7. Thinking skill: Spatial visualization

Strategy: Simplify the problem

Solution:

$$\begin{aligned}\text{Shaded area} &= \frac{1}{2} \times 12 \times 12 \\ &= 72 \text{ cm}^2\end{aligned}$$

8. Thinking skill: Spatial visualization

Strategy: Simplify the problem

Solution:

$$\begin{aligned}\text{Area of 2 triangles} &= 2 \times \frac{1}{2} \times 24 \times 24 \\ &= 576 \text{ in.}^2\end{aligned}$$

$$\text{Area of square} = 10 \times 10 = 100 \text{ in.}^2$$

$$\begin{aligned}\text{Unshaded area} &= 576 - 100 - 100 \\ &= 376 \text{ in.}^2\end{aligned}$$

## Chapter 7

### Lesson 7.1

- 60 grams
- 23 : 10; 11 : 60; 60 : 23; 39 : 10; 60 : 10  
(or 6 : 1)
- a. 4 : 3                      b. 5 : 12
- a. 7 : 20                      b. 8 : 5
- 14 : 15

### Lesson 7.2

- |           |             |
|-----------|-------------|
| 1. 12     | 2. 54       |
| 3. 56     | 4. 42       |
| 5. 72     | 6. 7        |
| 7. 9      | 8. 8        |
| 9. 2 : 3  | 10. 5 : 2   |
| 11. 7 : 4 | 12. 3 : 5   |
| 13. 8 : 5 | 14. 11 : 13 |
| 15. 2 : 3 | 16. 4 : 1   |

### Lesson 7.3

- a. 4 : 5 = 60 : 75  
He uses 75 blue tiles.  
b. 9 : 4 = 540 : 240  
He uses 240 gray tiles.
- a. 5 : 3 = 30 : 18  
The building is 30 meters tall.  
b. 5 : 3 = 45 : 27  
The shadow will be 27 meters long.

$$3. \quad 16 - 4 = 12$$

$$18 + 3 = 21$$

$$21 : 12 = 7 : 4$$

The ratio of the number of boys to the number of girls is 7 : 4.

$$4. \quad 2 \text{ units} \rightarrow 16 \text{ in.}$$

$$1 \text{ unit} \rightarrow 16 \div 2 = 8 \text{ in.}$$

$$\text{Length} = 5 \times 8$$

$$= 40 \text{ in.}$$

$$\text{Width} = 3 \times 8$$

$$= 24 \text{ in.}$$

$$\text{Area of rectangle} = 40 \times 24$$

$$= 960 \text{ in.}^2$$

#### Lesson 7.4

1. 8 : 5
2.  $\frac{8}{5}$
3.  $\frac{5}{8}$
4.  $\frac{8}{13}$
5.  $1\frac{3}{5}$  times
6. 3 : 8
7.  $\frac{3}{8}$
8.  $2\frac{2}{3}$  times
9. 77 fish

#### Lesson 7.5

1. 35; 20
2. 9; 18
3. 28; 36
4. 35; 63
5. 3 : 2 : 5
6. 6 : 3 : 5
7. 3 : 5 : 8
8. 4 : 7 : 8

#### Lesson 7.6

$$1. \quad \text{Keisha's age this year} = 12 + 3$$

$$= 15 \text{ years}$$

$$\text{Sarah's age : Keisha's age} = 4 : 5 = 12 : 15$$

$$\text{Ratio in 9 years} = (12 + 9) : (15 + 9)$$

$$= 21 : 24$$

$$= 7 : 8$$

The ratio of Sarah's age to Keisha's age in 9 years is 7 : 8.

$$2. \quad \text{Distance dog runs : Distance cat runs}$$

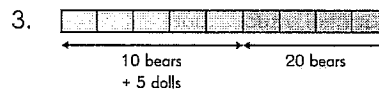
$$= 7 : 4$$

$$7 - 4 = 3$$

$$12 \div 3 = 4 \text{ times}$$

$$4 \times 7 = 28$$

The dog has to run 28 meters.



$$4 \text{ units} \rightarrow 20 \text{ bears}$$

$$2 \text{ units} \rightarrow 10 \text{ bears}$$

$$1 \text{ unit} \rightarrow 5 \text{ bears}$$

$$3 \text{ units} \rightarrow 5 \text{ dolls}$$

The ratio was 3 : 1.

$$4. \quad \text{Area of P : Area of Q} = 3 : 2 = 12 : 8$$

Number of units for the figure

$$= 12 + 8 - 5$$

$$= 15$$

Number of units for the unshaded part

$$= 15 - 5$$

$$= 10$$

$$10 : 15 = 2 : 3$$

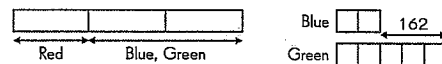
The ratio is 2 : 3.

#### Put on Your Thinking Cap!

1. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



$$3 \text{ units} \rightarrow 162$$

$$1 \text{ unit} \rightarrow 162 \div 3 = 54$$

$$7 \text{ units} \rightarrow 7 \times 54 = 378$$

$$2 \text{ units} \rightarrow 378$$

$$1 \text{ unit} \rightarrow 378 \div 2 = 189$$

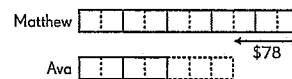
$$3 \text{ units} \rightarrow 3 \times 189 = 567$$

There are 567 ribbons in the basket.

2. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



$$3 \text{ units} \rightarrow \$78$$

$$1 \text{ unit} \rightarrow \$78 \div 3 = \$26$$

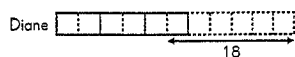
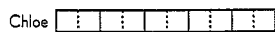
$$14 \text{ units} \rightarrow 14 \times \$26 = \$364$$

They have \$364 altogether.

3. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



6 units  $\rightarrow$  18

1 unit  $\rightarrow$   $18 \div 6 = 3$

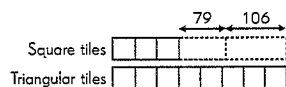
16 units  $\rightarrow$   $16 \times 3 = 48$

They have 48 books altogether.

4. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



5 units  $\rightarrow$   $79 + 106 = 185$

1 unit  $\rightarrow$   $185 \div 5 = 37$

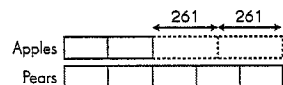
11 units  $\rightarrow$   $11 \times 37 = 407$

There were 407 tiles in the box at first.

5. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



3 units  $\rightarrow$   $261 + 261 = 522$

1 unit  $\rightarrow$   $522 \div 3 = 174$

2 units  $\rightarrow$   $2 \times 174 = 348$

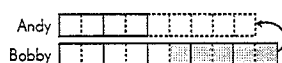
He had 348 apples at first.

6. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:

a. **Method 1**



The new ratio was 9 : 5.

**Method 2**

Andy's collection : Bobby's collection

$= 2 : 5$

$= 4 : 10$

$(4 + 5) : (10 - 5) = 9 : 5$

The new ratio was 9 : 5.

b. 4 units  $\rightarrow$  108

1 unit  $\rightarrow$   $108 \div 4 = 27$

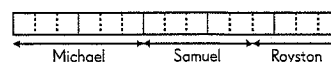
10 units  $\rightarrow$   $10 \times 27 = 270$

Bobby had 270 antique coins at first.

7. Thinking skill: Analyzing parts and whole

Strategy: Use a model

Solution:



2 units  $\rightarrow$  118

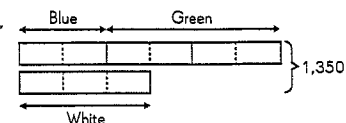
1 unit  $\rightarrow$   $118 \div 2 = 59$

15 units  $\rightarrow$   $15 \times 59 = 885$

There were 885 marbles in the box.

### Mid-Year Test

- |   |                   |       |       |
|---|-------------------|-------|-------|
| 1. B                                    | 2. B              | 3. C  | 4. C  |
| 5. D                                    | 6. A              | 7. C  | 8. B  |
| 9. D                                    | 10. D             | 11. C | 12. C |
| 13. A                                   | 14. B             | 15. A | 16. D |
| 17. D                                   | 18. D             | 19. C | 20. B |
| 21. 899,300                             | 22. 6,000         |       |       |
| 23. 84                                  | 24. 5             |       |       |
| 25. 180                                 | 26. 160           |       |       |
| 27. 78                                  | 28. $\frac{3}{4}$ |       |       |
| 29. 8                                   | 30. $\frac{2}{9}$ |       |       |
| 31. 3 : 2                               | 32. 7             |       |       |
| 33. 13                                  | 34. 8             |       |       |
| 35. 19                                  | 36. 455           |       |       |
| 37. 540                                 | 38. 680           |       |       |
| 39. 112.5                               |                   |       |       |
| 40. Mr. Johnson drives 2 miles farther. |                   |       |       |
| 41.                                     |                   |       |       |



9 units  $\rightarrow$  1,350

1 unit  $\rightarrow$   $1,350 \div 9 = 150$

4 units  $\rightarrow$   $4 \times 150 = 600$

600 green beads are used.

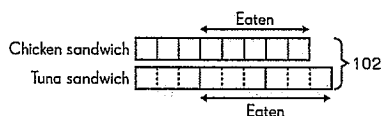
42. Area of triangle  $BDC = \frac{1}{2} \times 12 \times 12$   
 $= 72 \text{ cm}^2$

Area of square  $GEFC = 6 \times 6$   
 $= 36 \text{ cm}^2$

Area of triangle  $EDF = \frac{1}{2} \times (12 + 6) \times 6$   
 $= 54 \text{ cm}^2$

Shaded area  $= BDC + GEFC - EDF$   
 $= 72 + 36 - 54$   
 $= 54 \text{ cm}^2$

43.



17 units  $\rightarrow$  102

1 unit  $\rightarrow$   $102 \div 17 = 6$

8 units  $\rightarrow$   $8 \times 6 = 48$

9 units  $\rightarrow$   $9 \times 6 = 54$

She made 48 chicken sandwiches and 54 tuna sandwiches.

44. a. Number of red balls  $= 48 \div 3$   
 $= 16$

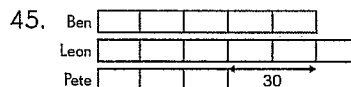
Number of white balls  $= 30 \div 5$   
 $= 6$

Total number of balls  $= 16 + 6 + 30 + 48$   
 $= 100$

There are 100 balls altogether.

b.  $1 - \frac{7}{10} = \frac{3}{10}$   
 $\frac{3}{10} \times 100 = 30$

30 balls will be left.



a. 2 units  $\rightarrow$  30

1 unit  $\rightarrow$   $30 \div 2 = 15$

14 units  $\rightarrow$   $14 \times 15 = 210$

They have 210 marbles altogether.

b.  $210 \div 3 = 70$

3 units  $\rightarrow$   $3 \times 15 = 45$

$70 - 45 = 25$

25 more marbles must be given to Pete.