Chapter 8

Lesson 1

Name _____ Date _____

Exploring Missing Factors

NCTM Standards 1, 2, 6, 9, 10

Sheila's Shipping Company uses these special shipping stamps for postage.

Group A:	10¢	20¢	30¢	40¢	50¢	60¢	70¢	80¢	90¢
Group B:	1¢	2¢	3¢	4¢	5¢	6¢	7¢	8¢	9¢

Complete the puzzles and number sentences to show the postage for each package. Use one stamp from Group A and one from Group B.

Example

×	A: 10	B: 5	15
5	50	25	75

5 × _____ = 75

1

×	A: 10	B:	
7	70		91

7 × _____ = 91

2

×	A: 30	B:	
4			152

4 × _____ = 152

3

×	A:	B:	
7			84

7 × _____ = 84

4

×	A:	B:	
5			290

5 × _____ = 290

5

×	A:	B:	
8			368

8 × _____ = 368

Use these puzzles to show the postage for each package for larger shipments. Complete the number sentences.

6

×	A: 20	B:	
10			
3		9	69
13		39	299

13 × _____ = 299

7

×	A: 50	B:	
10		80	
2			116
12		96	696

12 × _____ = 696

8

×	A:	B: 7	
10	400		
1			
11			517

11 × _____ = 517

9

×	A:	B: 5	
20			
6	180		
26	780		910

26 × _____ = 910

10 Challenge

×	A:	B: 7	
50			2,850
7	350	49	
57		399	3,249

57 × _____ = 3,249

11 Challenge

×	A:	B:	103
	1,000		
8	800		
			1,854

_____ × 103 = 1,854

Chapter 8

Lesson 2

Name _____ Date _____

Connecting Multiplication and Division

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Find the missing number.

1. | × | |
   |---|---|
   | 4 | 36 |

2. | × | |
   |---|---|
   | 2 | 36 |

3. | × | 6 |
   |---|---|
   | | 54 |

4. | × | 5 |
   |---|---|
   | | 40 |

5. | × | |
   |---|---|
   | 9 | 63 |

6. | × | 12 |
   |---|---|
   | 10 | |

Find the missing product or factor.

7. $7\overline{)56}$

8. $7\overline{)72}$ R 8

9. $4\overline{)100}$

10. $7\overline{)\ \ }$ R 7

11. $10\overline{)130}$

12. $12\overline{)120}$

13. $6\overline{)64}$ R 8

14. $1\overline{)100}$ R 20

15. $5\overline{)\ \ }$ R 40

16. $9\overline{)99}$

17. $3\overline{)150}$

18. $10\overline{)\ \ }$ R 17

19. $30\overline{)600}$

20. $50\overline{)1,000}$

21. $20\overline{)420}$

22. $20\overline{)500}$

23. $30\overline{)\ \ }$ R 40

24. $60\overline{)1,200}$

Solve one problem in each pair to help you solve the other.

25 $6\overline{)54}$ ↕ $3\overline{)54}$

26 $6\overline{)60}$ ↕ $12\overline{)60}$

27 $\begin{array}{r}12\\7\overline{)}\\14\overline{)6}\end{array}$ (↕)

28 $\begin{array}{r}12\\10\overline{)}\\5\overline{)120}\end{array}$ (↕)

29 Pick one of the pairs above. Explain how you used one problem to help you solve the other.

_____

_____

_____

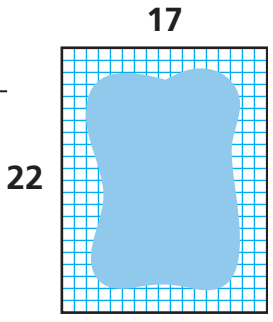
Whenever possible, use solutions to earlier problems to help you solve new ones.

30 $12\overline{)240}$ → $12\overline{)480}$ → $24\overline{)480}$ → $\begin{array}{r}40\\24\overline{)}\end{array}$

31 $13\overline{)130}$ → $26\overline{)130}$ → $\begin{array}{r}15\\\overline{)390}\end{array}$ → $26\overline{)520}$

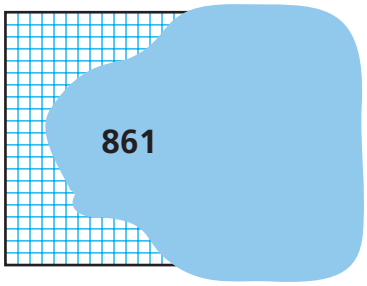
32 Challenge A piece of half-inch graph paper has 22 rows of squares with 17 squares in each row. How many squares does it have?

_____



33 Challenge Kristina's mom used 861 one-inch square tiles to tile the top of Kristina's dresser. There were 21 rows of tiles. How many tiles are in each row?

_____



Chapter 8

Lesson 3

Name _____ Date _____

Dividing Using Multiplication and the Area Model

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Cut the area model in any way that helps you solve the problem. There are twenty-five rows. How many squares per row are there?

1

$25\overline{)625}$

Total = 625 squares

2

$25\overline{)875}$

Total = 875 squares

3

$25\overline{)2,575}$

Total = 2,575 squares

4

$25\overline{)8,825}$

Total = 8,825 squares

Use estimates or list some convenient multiples of 23 to help you.

This time there are only twenty-three rows. How many squares are there per row?

5

23

$23\overline{)483}$

6

23

$23\overline{)989}$

7

23

$23\overline{)9,775}$

8 Challenge Miss Tanaka's 23 fifth graders lay down head to toe in the yard and measured their combined height. From the toe of the first child to the top of the last child's head, they measured just over 109 feet and 3 inches.

About how many inches tall was each child? _____

Explain how you found your answer.

Chapter 8

Lesson 4

Name _____ Date _____

Recording the Steps in Division

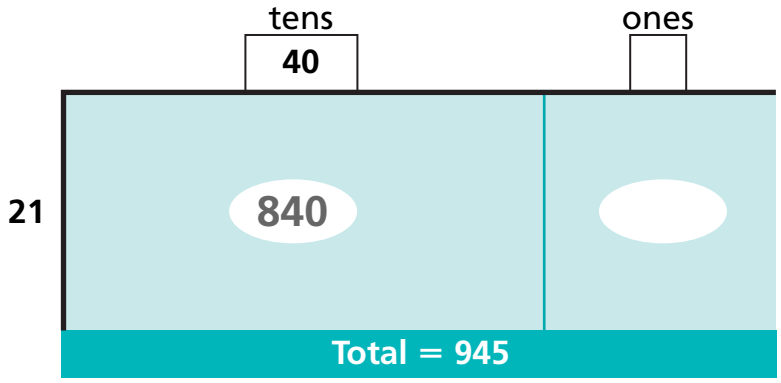
NCTM Standards 1, 2, 6, 7, 8, 9, 10

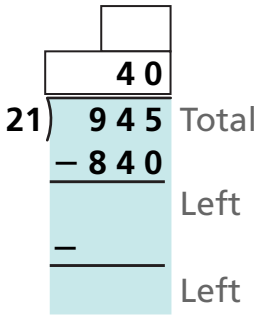
1 Complete the table of multiples of 21.

×	1	2	4	5	8	10	20	40	50	80
21										

Complete the area models and division records.

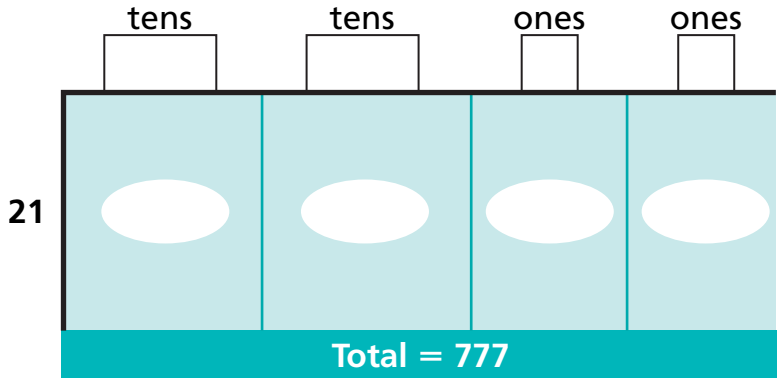
2

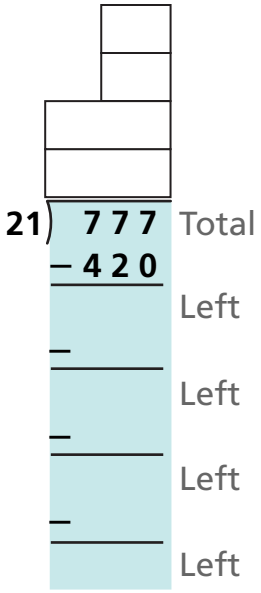




Summary: 945 ÷ 21 = ☐

3





Summary: ☐ 21) 777

Solve these on a separate piece of paper.

4 21) 441

5 21) 882

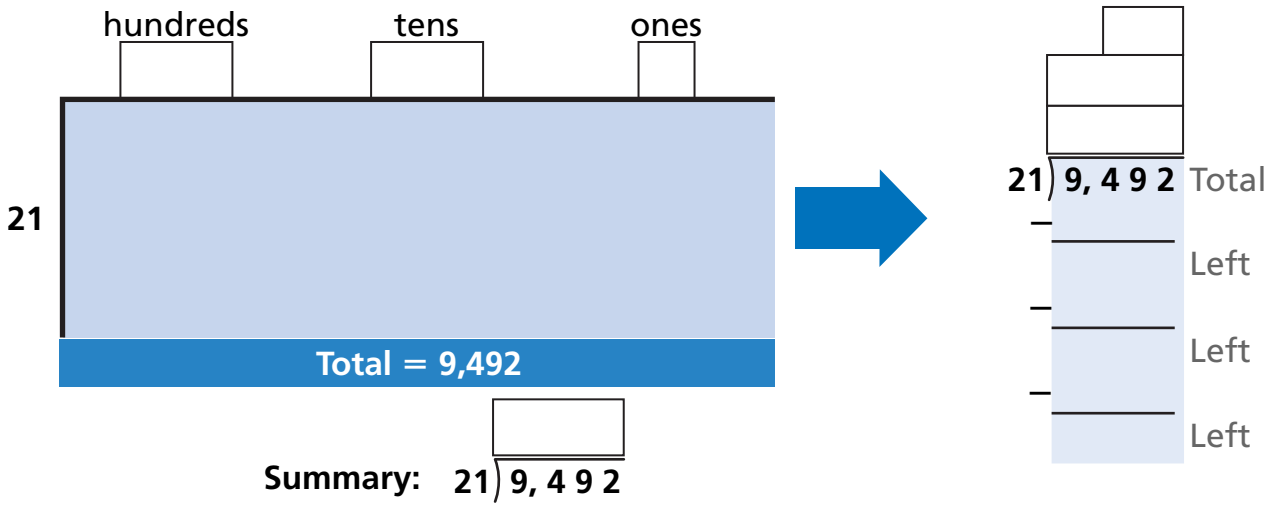
6 21) 2,184

7 21) 1,995

8 Complete this table.

×	100	200	400	500	800
21					

9 Complete.



Solve these on a separate piece of paper.

10 21) 2 1, 0 0 0

11 21) 9, 9 9 6

12 21) 7, 7 7 0

13 21) 7, 7 9 1

14 How many 5th grade classes are in your school? _____

About how many 5th graders does your school have? _____

If there are about the same number of students in each grade, estimate the number of students in your school. _____

15 **Challenge** Many new students enrolled in Sam Houston Elementary School. There are now 1,048 children enrolled. All classes except one have 25 children. To have one teacher for every class, how many teachers does the school need?

_____

_____

Chapter 8

Lesson 5

Name _____ Date _____

Dividing and Recording Division Efficiently

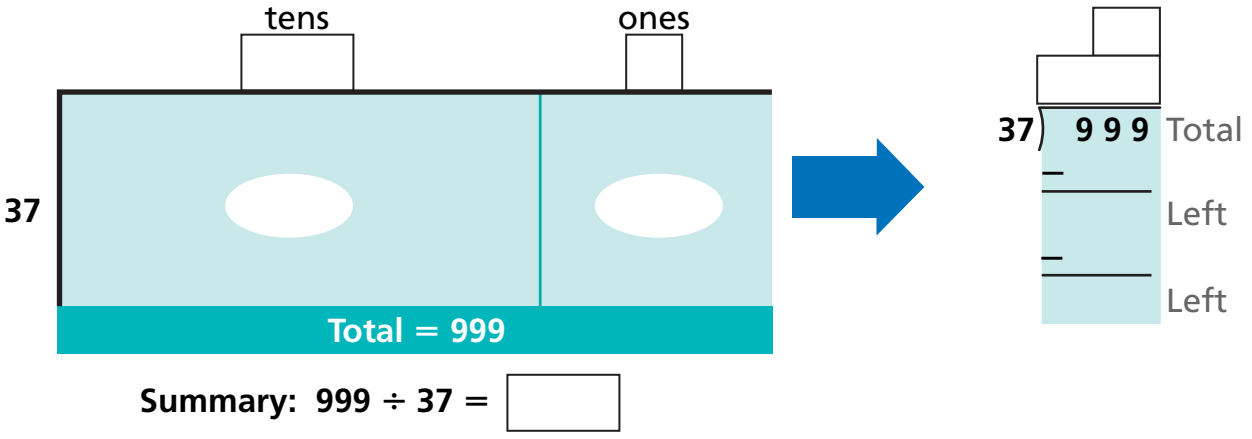
NCTM Standards 1, 2, 6, 7, 8, 9, 10

1 Complete the table of multiples of 37.

×	1	2	3	4	5	6	7	8	9
37									

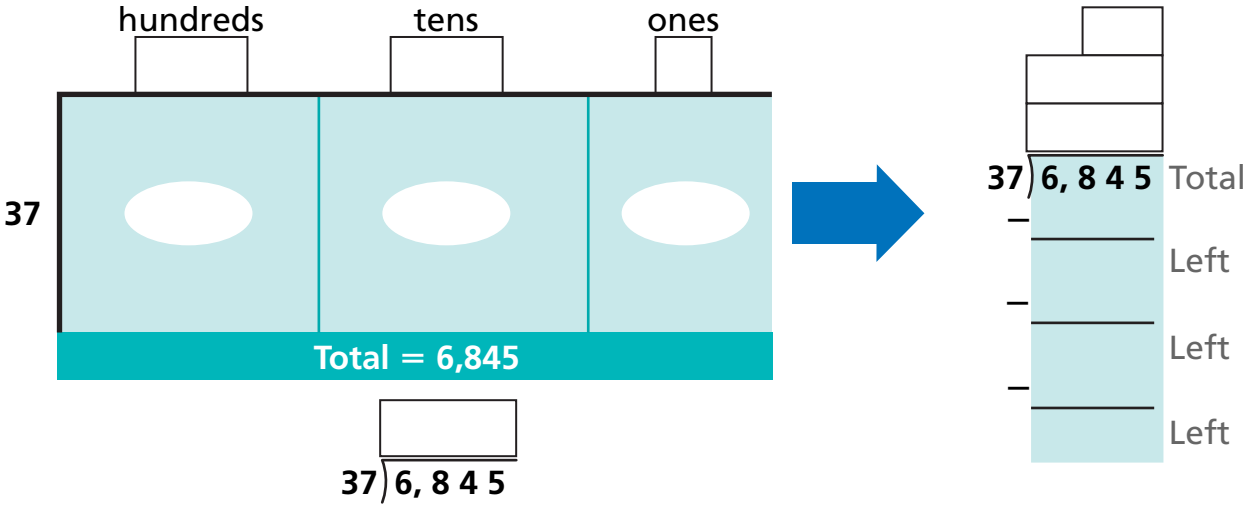
Complete the area models and division records.

2



Summary: 999 ÷ 37 = ☐

3



Solve these on a separate piece of paper.

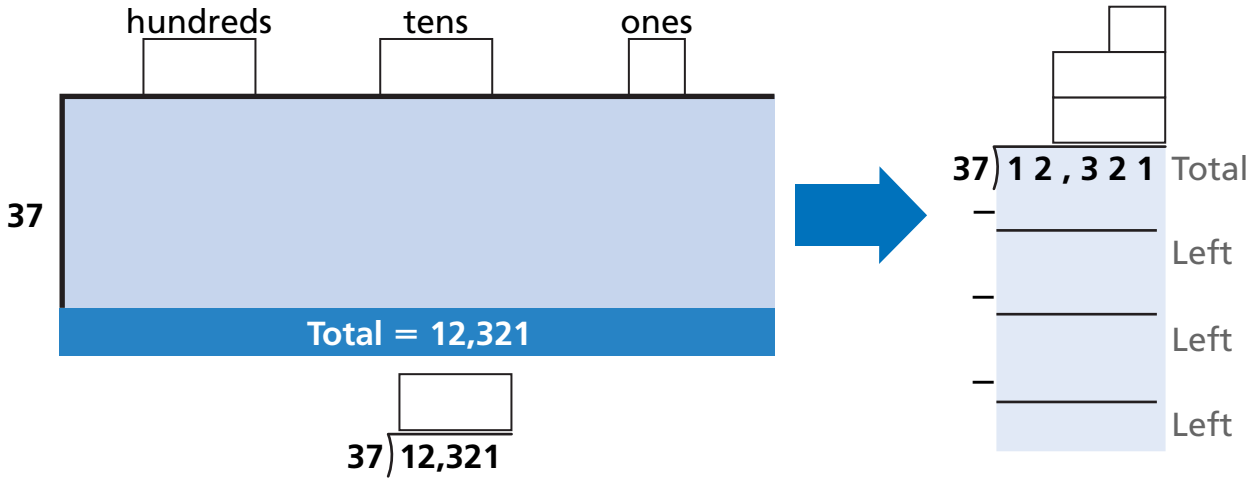
4 37) 7 0 3

5 37) 9 6 2

6 37) 1, 3 6 9

7 37) 8, 2 1 4

8 Use the table of multiples of 37 that you made earlier to solve this problem.



Make a table of multiples of 17 and solve the division problems below.

×	1	2	3	4	5	6	7	8	9
17									

9 17 ⟌ 3 9 1

10 17 ⟌ 7 3 1

11 17 ⟌ 9 8 6

12 17 ⟌ 9, 9 9 6

13 **Challenge** Quick estimate: Are there more than three thousand 37s in 123,321? _____

Explain how you solved this problem.

_____

_____

_____

_____

Chapter 8

Lesson 6

Name _____ Date _____

Using Multiplication to Check Division

NCTM Standards 1, 2, 6, 7, 8, 9, 10

1 Complete the table of multiples of 28.

×	1	2	3	4	5	6	7	8	9
28									

2 Divide, and then check the division with multiplication. Show all your work.

Check:

$28\overline{)896}$

These division problems were done on a calculator. Check the results by multiplying. If there was an error, please correct it.

3 $28\overline{)1,232}$ = 44

Check:

Is the quotient correct? _____

If not, what is the correct quotient?

_____

4 $28\overline{)2,912}$ = 164

Check:

Is the quotient correct? _____

If not, what is the correct quotient?

_____

Divide and check. Use the table of multiples on LAB page 161, if you wish.

5 Check:

$28\overline{)2,380}$

6 Check:

$28\overline{)6,804}$

7 Challenge The division record shows a quotient with a remainder. Check the division.

Check:

$$\begin{array}{r} 56\overline{)2,215} \\ -\ 1,680 \\ \hline 535 \\ -\ 504 \\ \hline 31 \end{array}$$

Chapter 8

Lesson 7

Name _____ Date _____

Investigating Remainders

NCTM Standards 1, 2, 6, 7, 8, 9, 10

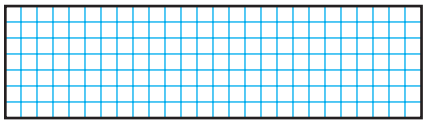
Find the whole-number quotient and, if present, the remainder. Then write a number sentence that checks the division. You can use a grid to help you.

1

$7\overline{)157}$

Number sentence:

_____

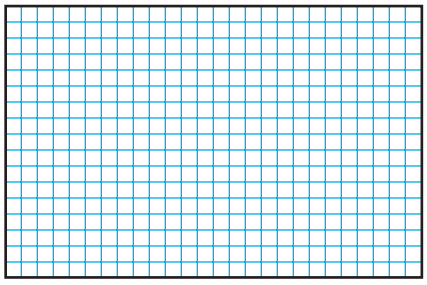


2

$17\overline{)157}$

Number sentence:

_____



3

$10\overline{)157}$

Number sentence:

_____

4

$5\overline{)157}$

Number sentence:

_____

Show quotients with fractions, if needed. Then write a number sentence that checks the division. You can use a grid to help you.

5

$12\overline{)157}$

Number sentence:

_____

6

$8\overline{)157}$

Number sentence:

_____

Write the answers using whole numbers and remainders, or using fractions if you prefer.

7 $24\overline{)3,266}$

8 $41\overline{)10,580}$

9 $35\overline{)11,975}$

10 **Challenge** Show a way to check that your answer for Problem 9 is correct.

Chapter 8

Lesson 8

Name _____ Date _____

Interpreting Remainders in Word Problems

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Decide what to do when there is a remainder—ignore it or include it as a fraction or a decimal.

1. How many 24-foot jump ropes can be made from a rope that is 100 feet long?

   Solution: _____

   What should you do about the remainder?

   _____

2. Nathan used lots of tennis balls when practicing his serve. At the end of practice, he gathered up 59 tennis balls and put them back into cans. If each can holds 3 tennis balls, how many cans will he fill?

   Solution: _____

   What should you do about the remainder?

   _____

3. Altogether, the 32 students in Ms. Rosenfeld's class raised $456 at the bake sale. The money will be divided up to pay for each student's admission and snack for a field trip. How much money is available for each student?

   Solution: _____

   What should you do about the remainder?

   _____

4 My large plastic bottle holds 196 ounces of water. How many cups of water is that? (1 cup = 8 oz)

Solution: _____

What should you do about the remainder?

_____

5 The bagel bakery advertised a "Baker's Dozen Sale": buy a dozen bagels and get an extra bagel free. The first batch they made was 20 dozen bagels. How many bags of 13 bagels will that make?

Solution: _____

What should you do about the remainder?

_____

6 **Challenge** A rope is 408 ft long. If it is cut into 32 shorter pieces, what is the length of each piece? Write your answer in feet and inches.

Solution: _____

What should you do about the remainder?

_____

_____

_____

Chapter 8

Lesson 9

Name _____ Date _____

Another Option for Interpreting Remainders

NCTM Standards 1, 2, 6, 7, 9

Decide what to do when there is a remainder—ignore it (round down), include it as a fraction or a decimal, or round up.

1. Four classes of fifth graders—a total of 107 students and adults—will travel by bus to Colonial Jamestown for a field trip. Forty-four people may ride on one bus. How many buses will be needed?

   Solution: _____

   What should you do about the remainder?

   _____

2. 180 people bought tickets to see a play. 22 people can fit in each row of seats. If the people fill in as many rows as possible, how many rows will have people seated in them?

   Solution: _____

   What should you do about the remainder?

   _____

3. The Cape Cod ferry can take 30 cars at a time. How many trips must the ferry make to take 366 cars?

   Solution: _____

   What should you do about the remainder?

   _____

4 Ms. Lawrence wants to give some special pencils to her 26 students. If she orders 11 dozen pencils and wants to give each student the same number of pencils, how many pencils will each student get?

Solution: _____

What should you do about the remainder?

_____

5 Marya was surprised when she saw on her pedometer that she had walked 135 miles in the last 30 days. If she walked about the same distance every day, about how many miles did she walk each day?

Solution: _____

What should you do about the remainder?

_____

6 **Challenge** We laid pencils side by side until the total width was a whole number of inches. We found that 24 pencils, side by side, measured 7 inches. We found some boxes that were $3\frac{1}{2}$ inches wide and held only one layer of pencils. How many of the smaller boxes would we need to hold 100 pencils? Explain.

Solution: _____

_____

_____

_____

What should you do about the remainder? _____

Chapter 8

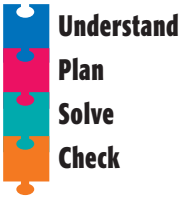
Lesson 10

Name _____ Date _____

Problem Solving Strategy

Draw a Picture

NCTM Standards 1, 2, 6, 7, 8, 9, 10



Solve. Show your work.

1. Juan's father baked 6 dozen cookies for Juan's birthday party. If Juan and his ten friends share the cookies equally, how many cookies will be left for Juan's father?

_____

2. Tia loves celebrating her birthday. One day she said she was 10 years and 135 days old. That means there were 230 days until her next birthday. How many full weeks were there until her next birthday?

_____

How many extra days were left?

_____

3. Three friends want to share two candy bars equally. How much will each friend get? Draw a picture that might help you explain why your solution is correct.

_____

Problem Solving Test Prep

Choose the correct answer.

1 Ryan divides his model car collection into groups of 8 cars. There are 3 cars left over. How many cars would be left over if he divided his collection into groups of 4?

A. 8
B. 6
C. 3
D. 2

2 Jada stacks boxes to make a pyramid display in a store window. Each row has one fewer box than the row below it. If the bottom row has 9 boxes, how many boxes are in the display?

A. 35
B. 45
C. 55
D. 72

Show What You Know

Solve each problem. Explain your answer.

3 The streets in Morgan's town run north-south and east-west. She leaves her house on her bike, rides 5 blocks north, 4 blocks east, 6 blocks south, and 1 block west. What is the least number of blocks she must ride to get home?

4 Albert, Carlo, Jamie, and Steve do odd jobs on the weekends. One Saturday, Albert earned more than Carlo but less than Jamie. Steve earned more than Jamie. Using this information, is it possible to put the boys in order from greatest to least earnings? If so, put them in order, and explain your answer. If not, explain what other information you would need.

Chapter 8

Name _____ Date _____

Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Find the missing product or factor. Lessons 1 and 2

1. $\begin{array}{r} 8 \\ 5\overline{)\,5\ 6} \end{array}$

2. $\begin{array}{r} 2\ 0 \\ \overline{)\,1\ 2\ 0} \end{array}$

3. $\begin{array}{r} 3\ 0 \\ 5\overline{)\ \ \ } \end{array}$

4. $7\overline{)\,7\ 7}$

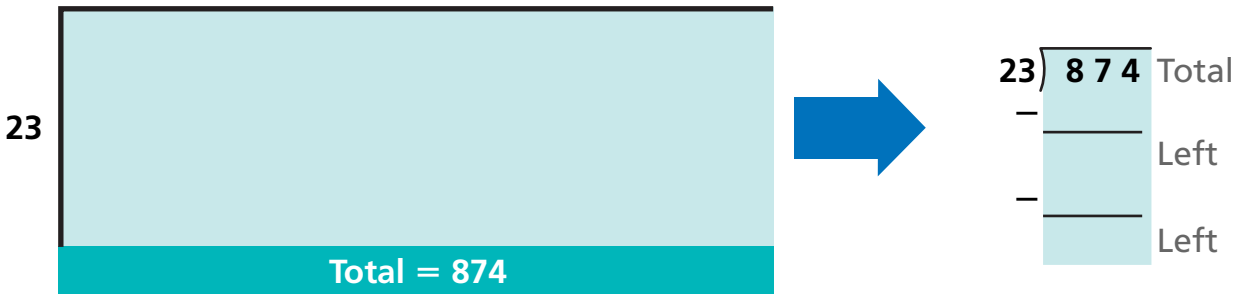
5. $3\overline{)\,2\ 1\ 0}$

6. $\begin{array}{r} 2\ 3 \\ 10\overline{)\ \ \ } \end{array}$

Use this table of multiples of 23 to help you with Problems 7 and 8.

×	1	2	3	4	5	6	7	8	9	10
23										

7. Complete the area model or the division record to find 874 ÷ 23. (You don't have to complete both.) Lesson 2



Summary: 874 ÷ 23 = _____

8. Divide, and then check your division with multiplication. Show all your work. Lessons 3 and 6

Check.

$23\overline{)\,9\ 8\ 9}$

Find the answers to the following problems. Lessons 3 and 7

9 Write the answer using whole numbers.

$24\overline{)626}$

10 Divide. Write the remainder as a fraction.

$34\overline{)880}$

11 Theresa created a card game that used 102 cards. She could fit 8 cards on a sheet of paper. How many sheets of paper did she need to make the cards? Lessons 3, 8, and 9

Solution: _____

What should you do about the remainder? _____

Solve the problem. Show your work.

12 A painting is 17 inches tall. Its area is 374 square inches. It hangs in the center of a wall that is 98 inches wide. How far is each side the painting from the ends of the wall? Lesson 10

_____

Explain how you solved the problem.

_____

_____

_____

_____

_____