Chapter 13

Lesson 1

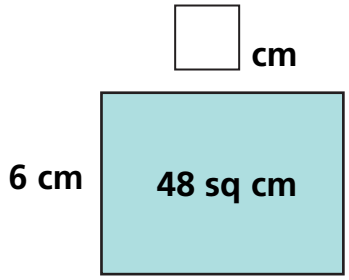
Name _____ Date _____

Finding Missing Dimensions

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

Find the missing length or width of the following rectangles.

1



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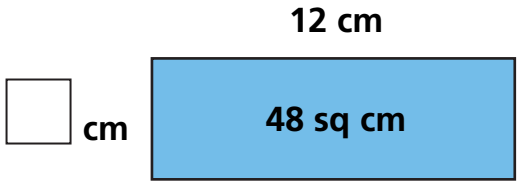

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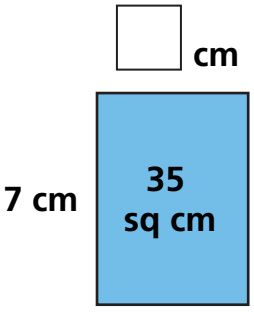

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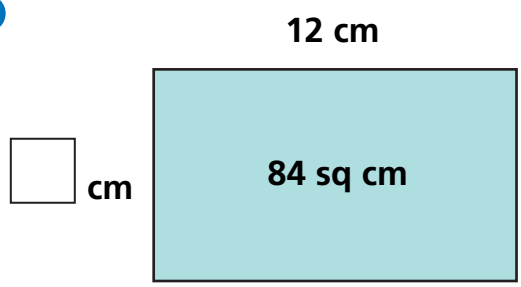

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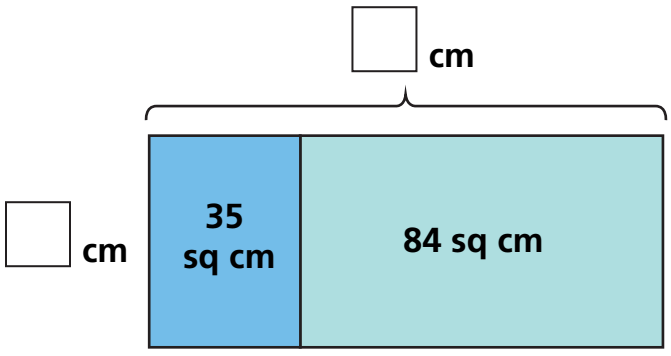
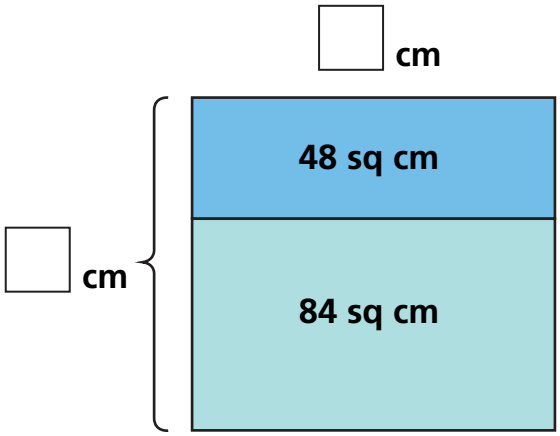


Total Area = _____ sq cm

6



Total Area = _____ sq cm

Solve.

7 Antonio put all 216 of his songs on 18 CDs. When he was finished, he was surprised to notice that each CD had exactly the same number of songs. How many songs were on each CD? Show your work.

_____ songs

8 There are 840 inches in the perimeter of Mr. Yang's classroom. How many feet are in the perimeter? Show your work.

_____ feet

9

$$\begin{array}{r} 16 \\ \square \\ \hline 144 \end{array}$$

10 $22 \times \square = 242$

11 $\square \times 12 = 96$

12 Challenge Put one digit in each box to make a true sentence.

$$\square\square \times \square\square = 2\square 5$$

Chapter 13

Lesson 2

Name _____ Date _____

Finding Missing Factors

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

Complete the multiplication puzzles.

Rule I: Only 0, 1, 2, 4, 8, or 16 can go in the **green** hexagons.
Rule II: The number in the **orange** hexagon must be the sum of the numbers in the **green** hexagons.

0	1	2	4	8	16

1

$4 \times 8 = \square$
$4 \times 1 = \square$
$4 \times 0 = \square$
$4 \times 9 = \square$

2

$7 \times 4 = \square$
$7 \times \bigcirc = \square$
$7 \times \bigcirc = \square$
$7 \times \bigcirc = 42$

3

$9 \times 4 = \square$
$9 \times \bigcirc = \square$
$9 \times \bigcirc = \square$
$9 \times 5 = \square$

4

$4 \times \bigcirc = \square$
$4 \times 2 = \square$
$4 \times \bigcirc = \square$
$4 \times 10 = \square$

5

$3 \times 2 = 6$
$3 \times \bigcirc = \square$
$3 \times \bigcirc = \square$
$3 \times 3 = 9$

6

$7 \times \bigcirc = \square$
$7 \times \bigcirc = \square$
$7 \times \bigcirc = \square$
$7 \times 7 = \square$

7

$3 \times \bigcirc = \square$
$3 \times \bigcirc = \square$
$3 \times \bigcirc = \square$
$3 \times \bigcirc = \square$
$3 \times 12 = \square$

8

$5 \times \bigcirc = \square$
$5 \times \bigcirc = \square$
$5 \times \bigcirc = \square$
$5 \times \bigcirc = \square$
$5 \times \bigcirc = 55$

9

$6 \times \bigcirc = \square$
$6 \times \bigcirc = \square$
$6 \times \bigcirc = \square$
$6 \times \bigcirc = \square$
$6 \times \bigcirc = 42$

Again, use 0, 1, 2, 4, 8, or 16 to build the missing factor in the orange hexagon.

0	1	2	4	8	16

10

□ × ⬡ = □

□ × ⬡ = □

□ × ⬡ = □

6 × ⬡ = 54

11

8 × ⬡ = □

□ × ⬡ = □

□ × ⬡ = □

8 × ⬡ = 56

12

□ × ⬡ = □

□ × ⬡ = □

□ × ⬡ = □

3 × ⬡ = 18

13

4 × ⬡ = 32

14

5 × ⬡ = 35

15

3 × ⬡ = 42

16 Challenge Lu is doing work on her house. She's tearing down the wall that separates the kitchen from the dining room. The width of each room is 12 feet. The new room will be a long rectangular space. The old kitchen floor had an area of 144 square feet, and the old dining room floor had an area of 120 square feet. What is the length of the new joined room?

_____ ft _____ ft _____ feet

Chapter 15

Lesson 3

Name _____ Date _____

Finding Missing Factors More Efficiently

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

Rule I: Use only numbers from the **green** block to fill in the **green** hexagons.
Rule II: Try to use the largest number possible at each step.
Rule III: Use a zero for any green hexagon that you do not need.

0	1	2	3	6	9	18

1 starting number: **45**

9 × 3 = ☐
What's left? ☐
9 × ⬡ = ☐
What's left? ☐
9 × ⬡ = ☐
What's left? ☐
9 × 5 = **45**

2 starting number: **42**

7 × 6 = ☐
What's left? ☐
7 × 0 = ☐
What's left? ☐
7 × ⬡ = ☐
What's left? ☐
7 × ⬡ = **42**

3 starting number: **96**

8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = **96**

4 starting number: **75**

5 × ⬡ = ☐
What's left? ☐
5 × ⬡ = ☐
What's left? ☐
5 × ⬡ = ☐
What's left? ☐
5 × ⬡ = **75**

5 starting number: **104**

8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = ☐
What's left? ☐
8 × ⬡ = **104**

6 starting number: **98**

7 × ⬡ = ☐
What's left? ☐
7 × ⬡ = ☐
What's left? ☐
7 × ⬡ = ☐
What's left? ☐
7 × ⬡ = **98**

Again, use 0, 1, 2, 3, 6, 9, or 18 to build the missing factor in the orange hexagon.

0	1	2	3	6	9	18

7 starting number: **32**

$2 \times \square = 32$

8 starting number: **51**

$3 \times \square = 51$

9 starting number: **275**

$25 \times \square = 275$

10

$15 \times \square = 195$

11

$4 \times \square = 132$

12

$9 \times \square = 225$

13 Challenge Soo Jin wants to give 12 stickers to each of her 8 friends. She has 71 stickers. How many more stickers does Soo Jin need? Show your work.

_____ stickers

Chapter 13

Lesson 4

Name _____ Date _____

Estimating Missing Factors and Quotients

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

Complete the puzzles. Begin by rewriting each division sentence as a multiplication sentence.

Rule I: Use only numbers from the **green** block to fill in the **green** boxes.
Rule II: Try to use the largest number possible at each step.
Rule III: Use a zero for any **green** box that you do not need.

0	1	2	3	4	5	6	7	8	9
0	10	20	30	40	50	60	70	80	90

Hint: Fill in the **green** boxes before the **blue** boxes.

1	2	3
136 ÷ 8 = ☐	712 ÷ 8 = ☐	216 ÷ 9 = ☐
8 × ☐ = 136	☐ × ☐ = ☐	☐ × ☐ = ☐
8 × 10 = 80	8 × ☐ = ☐	9 × ☐ = ☐
What's left? 56	☐	☐
8 × ☐ = ☐	8 × ☐ = ☐	9 × ☐ = ☐
What's left? ☐	☐	☐
8 × ☐ = ☐	8 × ☐ = ☐	9 × ☐ = ☐
What's left? ☐	☐	☐

Use numbers, words, or pictures to solve these problems.

4 Tim and four of his friends found 185 nickels! They shared the coins so that each ended up with the same number of nickels. How many nickels does each have? Write a number sentence to explain your answer.

_____ nickels

5 The police department spent $357 to buy seven identical winter coats for their officers. How much did each coat cost? Write a number sentence to explain your answer.

$_____

6 **Challenge** State Elementary School is having a field day. All 283 students were put onto six different teams as evenly as possible. Did all the teams have the same number of students? Explain your answer.

_____

_____

_____

_____

Chapter 13

Lesson 5

Name _____ Date _____

Dividing Using Multiplication Puzzles

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

Complete the puzzles. Rewrite each division sentence as a multiplication sentence. Choose numbers for the green boxes from this list:
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90

1

30
7 ⟌ 238

7 × 30 = 210

28

7 × ☐ = ☐

238 ÷ 7 = ☐

2

☐
9 ⟌ 432

9 × ☐ = ☐

9 × ☐ = ☐

432 ÷ 9 = ☐

3

☐
8 ⟌ 536

8 × ☐ = ☐

8 × ☐ = ☐

536 ÷ 8 = ☐

4

☐
6 ⟌ 582

6 × ☐ = ☐

6 × ☐ = ☐

582 ÷ 6 = ☐

5

☐
4 ⟌ 312

4 × ☐ = ☐

4 × ☐ = ☐

312 ÷ 4 = ☐

6

☐
9 ⟌ 153

9 × ☐ = ☐

9 × ☐ = ☐

153 ÷ 9 = ☐

Complete the puzzles. Rewrite each division sentence as a multiplication sentence. Choose numbers for the green boxes from this list:
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90

7

$$3\overline{)291}$$

$3 \times \square = \square$

$3 \times \square = \square$

$291 \div 3 = \square$

8

$$8\overline{)272}$$

$8 \times \square = \square$

$8 \times \square = \square$

$272 \div 8 = \square$

9

$$5\overline{)245}$$

$5 \times \square = \square$

$5 \times \square = \square$

$245 \div 5 = \square$

10 Challenge Write a word problem to match $138 \div 6$ and then solve it.

Chapter 13

Lesson 6

Name _____ Date _____

Completing Division Sentences

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

Complete the puzzles.

Rule I: Use only numbers from the **green** block to fill in the **green** boxes.
Rule II: Try to use the largest number possible at each step.
Rule III: Use a zero for any **green** box that you do not need.

0	1	2	3	4	5	6	7	8	9
0	10	20	30	40	50	60	70	80	90
0	100	200	300	400	500	600	700	800	900

1

5) 545

What's left? ☐

What's left? ☐

What's left? 0

545 ÷ 5 = ☐

2

3) 396

0

396 ÷ 3 = ☐

3

6) 558

0

588 ÷ 6 = ☐

Divide.

4

$15\overline{)225}$

225 ÷ 15 = ☐

5

$5\overline{)1{,}380}$

1,380 ÷ 5 = ☐

6

$6\overline{)3{,}126}$

3,126 ÷ 6 = ☐

7 Mr. Green has had 300 students over the course of his teaching career. One-fourth of his students have been 6 years old, one-third have been 7, and the rest have been 8. How many students of each age has Mr. Green taught?

_____ 6-year-olds

_____ 7-year-olds

_____ 8-year-olds

8 **Challenge** Write a division problem that has an answer between 111 and 222. Explain the solution.

_____

_____

_____

Chapter 13

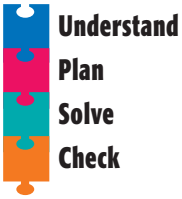
Lesson 7

Name _____ Date _____

Problem Solving Strategy

Working Backward

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10



1 Charles measured his rectangular playground and found the area to be 432 square feet. He recorded the length as 24 feet but forgot to record the width. What was the width? Show your work.

_____ feet

2 Mr. Tran made a list of some items he sells in his store. He has 10 umbrellas, 8 beach balls, 13 shovels, and 13 sunglasses. There are beach towels stacked equally on two shelves. Mr. Tran determined there are 76 items. How many towels are on each shelf?

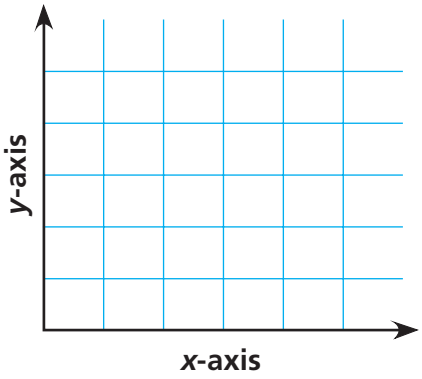
3 There are 192 people at a dinner party. An equal number of people are sitting at each of 12 tables. Fifty-seven people ordered steak and 63 people ordered salmon. The same number of people at each table ordered chicken. How many chicken dinners should be served at each table? Explain.

Problem Solving Test Prep

Choose the correct answer.

1 By following the grid lines, what is the shortest distance between points *A* and *B*?

A (1,5) and *B* (4,3)



A. 3 units **C.** 5 units

B. 4 units **D.** 6 units

2 Jerome wants to change 42 inches to feet. Which number sentence should he use?

A. 42×12 **C.** 42×3

B. $42 \div 12$ **D.** $42 \div 3$

3 You toss a number cube labeled 1 to 6. What is the probability that you will toss a 5?

A. $\frac{1}{5}$ **C.** $\frac{1}{6}$

B. $\frac{5}{5}$ **D.** $\frac{5}{6}$

4 Ms. Carpenter drives 19 miles from home to work. How far does she drive each day going to work and then returning home?

A. 21 miles **C.** 38 miles

B. 28 miles **D.** 39 miles

Show What You Know

Solve each problem. Explain your answer.

5 Jean Marie planted 9 rows of tomatoes and 9 rows of beans. Each row has the same number of plants. In all, there are 396 plants. How many plants are in each row? Explain.

_____

_____

6 Pablo is walking on a rectangular path. He walks 35 feet, turns right, and walks some more. He turns right and walks another 35 feet. He turns right and walks back to where he began. In all, he walks 100 feet. What is the area of the rectangle? Explain.

_____

_____

Chapter 13

Name _____ Date _____

Review/Assessment

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

Complete the multiplication and division sentences. Lessons 2 and 3

1

5 × ⬡ = 135

5 × 20 = ☐

What's left? ☐

5 × ⬡ = ☐

What's left? 0

5 × ⬡ = 0

What's left? 0

2

7 × ⬡ = 861

7 × ⬡ = ☐

What's left? ☐

7 × ⬡ = ☐

What's left? ☐

7 × ⬡ = ☐

What's left? 0

3

324 ÷ 9 = ☐

9 × ☐ = 324

9 × ☐ = ☐

9 × ☐ = ☐

9 × ☐ = ☐

4

427 ÷ 7 = ☐

☐ × ☐ = 427

☐ × ☐ = ☐

☐ × ☐ = ☐

☐ × ☐ = ☐

Circle the best estimate for each problem. Lesson 4

5 $32 \times ? = 2656$

800 80

1,200 60

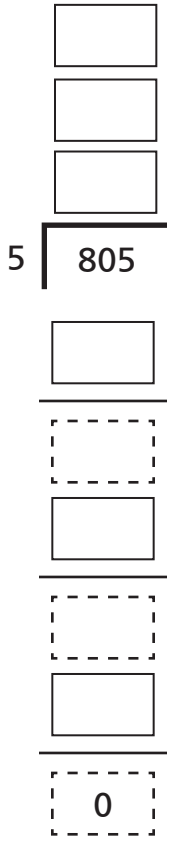
6 $1{,}200 \div 48 = ?$

400 30

24 6

Complete the division problems. Lessons 5 and 6

7



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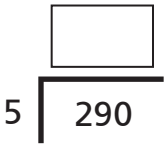

9 Mikaela worked at the school carnival. She sold a school hat for $10 and some T-shirts for $13 each. She collected $101. How many T-shirts did she sell? Show your work. Lesson 7