Chapter 4

Name _____

# Division Strategies

## Show What You Know

### Use Arrays to Divide
**Draw to complete each array. Then complete the equation.**

1. 

$8 \div 4 =$ _____

2. 

$21 \div 3 =$ _____

### Multiples
**Write the first six multiples of the number.**

3. 4: _____

4. 10: _____

### Subtract Through 4-Digit Numbers
**Find the difference.**

5. $\begin{array}{r} 626 \\ -\ 8 \\ \hline \end{array}$

6. $\begin{array}{r} 744 \\ -\ 36 \\ \hline \end{array}$

7. $\begin{array}{r} 5{,}413 \\ -2{,}037 \\ \hline \end{array}$

8. $\begin{array}{r} 8{,}681 \\ -\ 422 \\ \hline \end{array}$

## MATH in the Real World

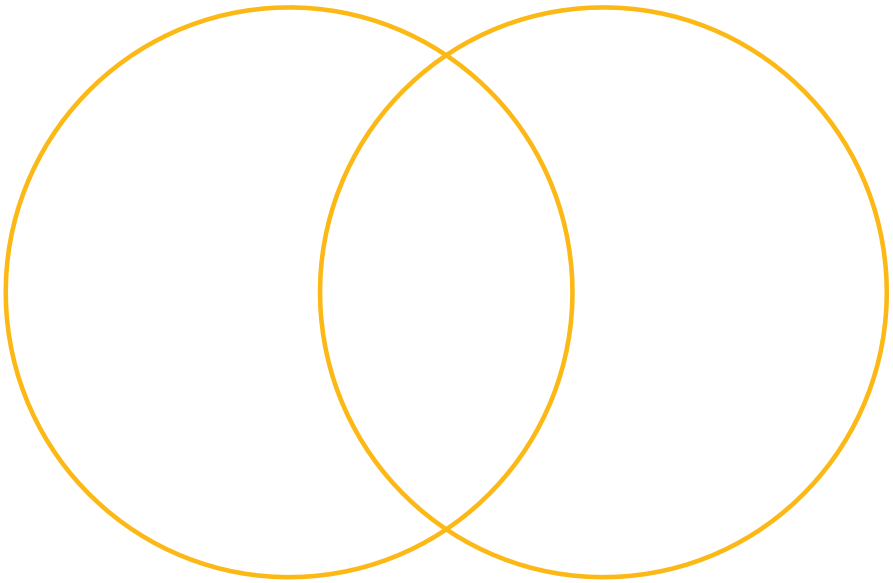
Myra is making key chains for her school craft fair. She has 78 charms in her craft box. Each key chain uses 4 charms. How many key chains can she make with the charms she has? How many more charms would she need if she wants to make 25 key chains?

# Vocabulary Builder

Go Online For more help

## Visualize It

**Sort the words into the Venn diagram.**



Multiplication Words  Division Words

**Connect to Vocabulary**

**Review Words**

- Distributive Property
- divide
- dividend
- division
- divisor
- factor
- multiple
- multiplication
- product
- quotient

**Preview Words**

- compatible numbers
- remainder

## Understand Vocabulary

**Write the word that answers the riddle.**

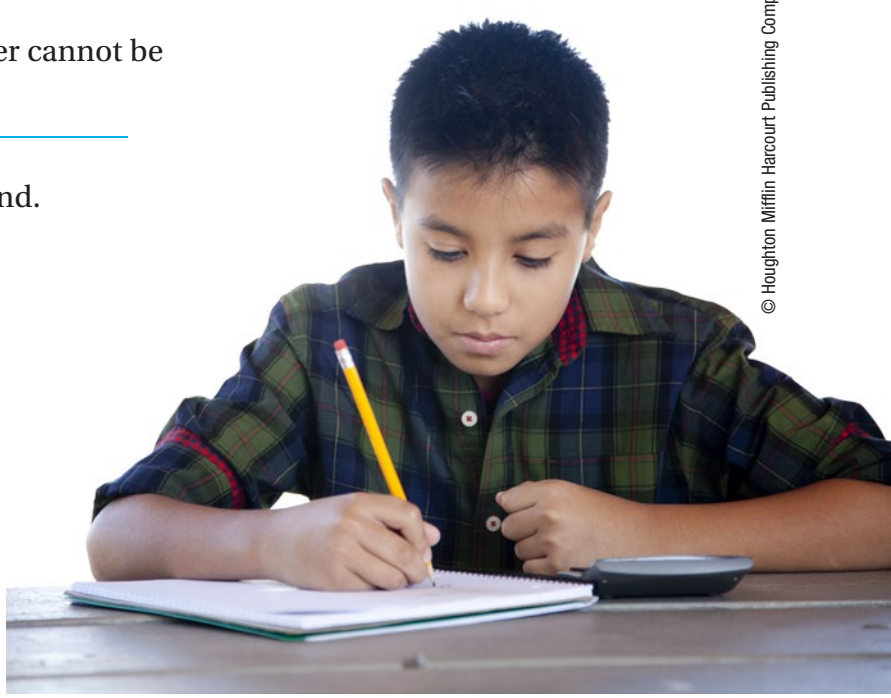
1. I am the number that is to be divided in a division problem.

   _____

2. I am the amount left over when a number cannot be divided equally. _____

3. I am the number that divided the dividend.

   _____



Name _____

# Investigate Remainders

**Florida's B.E.S.T.**

- **Number Sense & Operations** 4.NSO.2.4, 4.NSO.2.5
- **Algebraic Reasoning** 4.AR.1.1
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

**I Can** use models to solve division problems with remainders.

## Investigate

**Materials** ■ counters

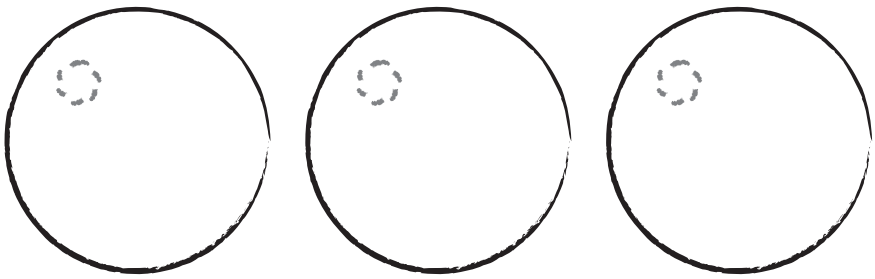
Taliya and 2 friends are playing a game of dominoes. There are 28 dominoes in the set. Taliya wants each player to receive the same number of dominoes. Can she divide them equally among the 3 players? Why or why not?

You can use division to find the number of dominoes each player will receive.

**A.** Use 28 counters to represent the 28 dominoes. Then draw 3 circles to represent the 3 players.

**B.** Share the counters equally among the 3 groups by placing them in the circles.

**Draw a quick picture to show your work.**



**C.** Find the number of counters in each group and the number of counters left over. Record your answer.

_____ counters in each group

_____ counter left over

## Draw Conclusions

1. How many dominoes does each player receive? _____

   How many dominoes are left over? _____

2. How many players can play the game if each player receives 9 counters? Will any counters be left over? Explain.

_____

_____

## Make Conections

When a number cannot be divided evenly, the amount left over is called the **remainder**.

**Use counters to find 39 ÷ 5.**

- Share 39 counters equally among 5 groups. The number of counters left over is the remainder.

**Draw a quick picture to show your work.**

For 39 ÷ 5, the quotient is _____ and the remainder is _____, or 7 r4.

**Write the remainder as a fraction.**

Since there are 4 counters left and you need 5 to keep the groups equal, the remainder is $\frac{4}{5}$.

Math Talk

**MTR 4.1** Engage in discussions on mathematical thinking.

How do you know when there will be a remainder in a division problem?

Name _____

## Share and Show Math Board

**Use counters to find the quotient and remainder. Write the remainder as a fraction.**

**1.** $10 \div 3$

**2.** $28 \div 5$

**3.** $15 \div 6$

**4.** $11 \div 3$

**5.** $29 \div 4$

**6.** $34 \div 5$

**7.** $25 \div 3$

**8.** $7\overline{)20}$

**Divide. Draw a quick picture to help.**

**9.** $4\overline{)35}$

**10.** $23 \div 8$

## On Your Own

**11.** MTR Explain how you use a quick picture to find the quotient and remainder.

**12.** Alyson has 46 beads to make bracelets. Each bracelet has 5 beads. How many more beads does Alyson need so that all the beads she has are used? Explain.

**13.** For 13a–13d, choose Yes or No to tell whether the division expression has a remainder.

| | | | |
|---|---|---|---|
| 13a. | $36 \div 9$ | ○ Yes | ○ No |
| 13b. | $23 \div 3$ | ○ Yes | ○ No |
| 13c. | $82 \div 9$ | ○ Yes | ○ No |
| 13d. | $28 \div 7$ | ○ Yes | ○ No |

**14.** Macy, Kayley, Maddie, and Rachel collected 13 marbles. They want to share the marbles equally. How many marbles will each of the 4 girls get? How many marbles will be left over?

**MATH on the Spot**

Oscar used a model to solve this problem. He says his model represents $4\overline{)13}$. What is his error?

**Look at the way Oscar solved this problem. Find and describe his error.**

**Draw a correct model and solve the problem.**

So, each of the 4 girls will get _____ marbles and _____ marble will be left over.

Name _____



# Investigate Remainders

Go Online
Interactive Examples

**Use counters to find the quotient and remainder. Write the remainder as a fraction.**

**1.** $13 \div 4$

$3\frac{1}{4}$

**2.** $24 \div 7$

**3.** $39 \div 5$

**4.** $36 \div 8$

**5.** $6\overline{)27}$

**6.** $25 \div 9$

**7.** $3\overline{)17}$

**8.** $26 \div 4$

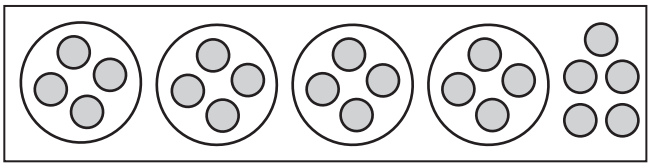
**Divide. Draw a quick picture to help.**

**9.** $14 \div 3$

**10.** $5\overline{)29}$

## Problem Solving Real World

**11.** Noe drew the following model and said it represented the problem $21 \div 4$. Is Noe's model correct? If so, what is the quotient and remainder? If not, what is the correct quotient and remainder?

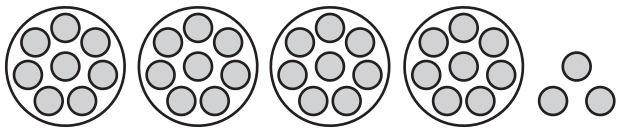


**12.** WRITE Math Describe a real-life situation where you would have a remainder.

## Lesson Check

**13.** What is the quotient and remainder for 32 ÷ 6?

**14.** What is the remainder in the division problem modeled below?



## Spiral Review

**15.** Each kit to build a castle contains 235 parts. How many parts are in 4 of the kits?

**16.** In 2019, the population of Alaska was about 731,545. What is this number written in word form?

**17.** At the theater, one section of seats has 8 rows with 12 seats in each row. In the center of each of the first 3 rows are 4 broken seats that cannot be used. How many seats can be used in the section?

**18.** What partial products are shown by the model below?

Name _____

# Interpret Remainders

**I Can** interpret remainders in a division problem.

**Florida's B.E.S.T.**

- **Number Sense & Operations** 4.NSO.2.4, 4.NSO.2.5
- **Algebraic Reasoning** 4.AR.1.1
- **Mathematical Thinking & Reasoning** MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

## UNLOCK the Problem Real World

Tauret has some leftover wallpaper 73 inches long. She wants to cut it into 8 pieces to use around the photos in her scrapbook. Each piece will have equal length. How long will each piece be?

When you solve a division problem with a remainder, the way you interpret the remainder depends on the situation and the question.

### One Way Write the remainder as a fraction.

The divisor is _____ pieces.

The _____ is 73 inches.

Divide to find the quotient and remainder. $8\overline{)73}$ $9$ r1

The remainder represents 1 inch left over, which can also be divided into 8 equal parts and written as a fraction.

$$\frac{\text{remainder}}{\text{divisor}} = \frac{\quad}{\quad}$$

Write the quotient with the remainder written as a fraction. _____

So, each piece will be _____ inches long.

**Remember**

You can use multiples, counters, or draw a quick picture to divide.

## Try This!

Rico made 32 ounces of soup for 5 people. How many ounces will each person get? Complete the division.

$5\overline{)32}$ $\square\,\square$

Each person gets _____ ounces.

**Math Talk** MTR 4.1 Engage in discussions on mathematical thinking.

Explain what the 2 in the answer represents.

**Go Online** For more help

## Other Ways

**A** **Use only the quotient.**

Binh is a tour guide at a glass-blowing studio. He can take no more than 7 people at a time on a tour. If 80 people want to see the glass-blowing demonstration, how many groups of 7 people will Binh show around?

**First,** divide to find the quotient and remainder.
**Then,** decide how to use the quotient and remainder.

The quotient is _____.

$$7\overline{)80} \quad \begin{matrix} 11 \\ \text{r } \square \end{matrix}$$

The remainder is _____.

Binh can give tours to 7 people at a time. The quotient is the number of tour groups of exactly 7 people he can show around.

So, Binh gives tours to _____ groups of 7 people.

**B** **Add 1 to the quotient.**

If Binh gives tours to all 80 people, how many tours will he give? A tour can have no more than 7 people. To show all 80 people around, Binh will have to give 1 more tour.

So, Binh will give _____ tours in all for 80 people.

**C** **Use only the remainder.**

Binh gives tours to all 80 people. After he completes the tours for groups of 7 people, how many people are in his last tour?

The remainder is 3.

So, Binh's last tour will have _____ people.

Math Talk

**MTR 5.1** Use patterns and structure.

Why would you not write the remainder as a fraction when you found the number of vans needed?

## Try This!

Students are driven to soccer games in vans. Each van holds 9 students. How many vans are needed for 31 students?

Divide. 31 ÷ 9 _____

Since there are _____ students left over, _____ vans are needed to carry 31 students.

Name _____

## Share and Show

1. Swati baked 53 mini-loaves of banana bread to be sliced for snacks at a craft fair. She will place an equal number of loaves in 6 different locations. How many loaves will be at each location?

   **a.** Divide to find the quotient and remainder.

   $6\overline{)53}$ ☐ r ☐

   **b.** Decide how to use the quotient and remainder to answer the question.

_____

**Interpret the remainder to solve.**

2. What if Swati wants to put only whole loaves at each location? How many loaves will be at each location?

_____

3. Ed carves 22 small wooden animals to sell at the craft fair. He displays them in rows with 4 animals in a row. How many animals will not be in equal rows?

_____

## On Your Own

**Interpret the remainder to solve.**

4. Myra has a 17-foot roll of crepe paper to make 8 streamers to decorate for a party. How long will each streamer be if she cuts the roll into equal pieces?

_____

5. Juan has a piano recital next month. Last week he practiced for 8 hours in the morning and 7 hours in the afternoon. Each practice session is 2 hours long. How many full practice sessions did Juan complete?

MATH on the Spot

_____

6. A total of 25 students sign up to be hosts on Parent's Night. Teams of 3 students greet parents. How many students cannot be on a team? Explain.

_____

_____

_____

## Problem Solving · Applications

**Use the picture for 7–9.**

**7.** Teresa is making sock puppets just like the one in the picture. If she has 53 buttons, how many puppets can she make?

**8.** Write a question about Teresa and the sock puppets for which the answer is 3. Explain the answer.

**9.** MTR How many more buttons will Teresa need if she wants to make 12 puppets? Explain.

**10.** A total of 56 students signed up to play in a flag football league. If each team has 10 students, how many more students will need to sign up so all of the students can be on a team?

**11.** A teacher plans for groups of her students to eat lunch at tables. She has 34 students in her class. Each group will have 7 students. How many tables will she need? Explain how to use the quotient and remainder to answer the question.

### Show the Math

Demonstrate Your Thinking

Name _____

# Interpret Remainders

Go Online
Interactive Examples

**Interpret the remainder to solve.**

**1.** Hakeem has 100 tomato plants. He wants to plant them in rows of 8. How many full rows will he have?

**Think:** 100 ÷ 8 is 12 with a remainder of 4. The question asks "how many full rows," so use only the quotient.

12 full rows

**2.** A teacher has 27 students in her class. She asks the students to form as many groups of 4 as possible. How many students will not be in a group?

**3.** A sporting goods company can ship 6 footballs in each carton. How many cartons are needed to ship 75 footballs?

## Problem Solving Real World

**4.** Salena has 70 beads. She uses 8 beads for each bracelet. She makes as many bracelets as possible. How many beads will Salena have left over?

**5.** A teacher wants to give 3 markers to each of her 25 students. Markers come in packages of 8. How many packages of markers will the teacher need?

**6.** WRITE Math Write word problems that represent each way you can use a remainder in a division problem. Include solutions.

## Lesson Check

**7.** Hisoka sorts his 85 baseball cards into stacks of 9 cards each. How many stacks of 9 cards can Hisoka make?

**8.** A minivan can hold up to 7 people. How many minivans are needed to take 45 people to a basketball game?

## Spiral Review

**9.** Mrs. Wilkerson cut some oranges into 20 equal pieces to be shared equally by 6 friends. How many pieces did each person get and how many pieces were left over?

**10.** A school bought 32 new desks. Each desk cost $24. Estimate how much the school spent on the new desks.

**11.** Kris has a box of 8 crayons. Sylvia's box has 6 times as many crayons as Kris's box. How many crayons are in Sylvia's box?

**12.** Yesterday, 1,743 people visited the fair. Today, there are 576 more people at the fair than yesterday. How many people are at the fair today?

Name _____

# Divide Tens, Hundreds, and Thousands

**Florida's B.E.S.T.**

- **Number Sense & Operations** 4.NSO.2.4, 4.NSO.2.1
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.4.1, MTR.5.1, MTR.6.1

**I Can** use place value to divide a whole number up to four digits by a one-digit whole number.

## UNLOCK the Problem Real World

Dustin is packing apples in gift boxes. Each gift box holds 4 apples. How many boxes can Dustin pack with 120 apples?

You can divide using basic facts and place value.

### Example 1 Divide. 120 ÷ 4

**STEP 1** Identify the basic fact. 12 ÷ 4

**STEP 2** Use place value. 120 = _____ tens

**STEP 3** Divide. 12 tens ÷ 4 = _____ tens ← **Think:** 4 × 3 tens = 12 tens

= _____

120 ÷ 4 = 30

So, Dustin can pack _____ boxes.

### Example 2 Divide. 1,200 ÷ 4

**STEP 1** Identify the basic fact. 12 ÷ 4

**STEP 2** Use place value. 1,200 = _____ hundreds

**STEP 3** Divide. 12 hundreds ÷ 4 = _____ hundreds ← **Think:** 4 × 3 hundreds = 12 hundreds

= _____

1,200 ÷ 4 = 300

**Math Talk**

**MTR 4.1** Engage in discussions on mathematical thinking.

What pattern do you notice in the place value of the dividends and quotients?

- **MTR** Explain how to use a basic fact and place value to divide 4,000 ÷ 5.

_____

_____

## Share and Show

Math Board

Math Talk

**MTR 4.1** Engage in discussions on mathematical thinking.

How are Problems 1 and 2 alike and how are they different?

**1.** Divide. 2,800 ÷ 7

What basic fact can you use? _____

2,800 = 28 _____

28 hundreds ÷ 7 = _____

2,800 ÷ 7 = _____

**2.** Divide. 280 ÷ 7

What basic fact can you use? _____

280 = 28 _____

28 tens ÷ _____ = 4 _____

280 ÷ 7 = _____

**Use basic facts and place value to find the quotient.**

**3.** 360 ÷ 6 = _____

**4.** 2,000 ÷ 5 = _____

**5.** 4,500 ÷ 9 = _____

## On Your Own

**Use basic facts and place value to find the quotient.**

**6.** 560 ÷ 8 = _____

**7.** 6,400 ÷ 8 = _____

**8.** 3,500 ÷ 7 = _____

**MTR Find the unknown number.**

**9.** 420 ÷ ▢ = 60 _____

**10.** ▢ ÷ 4 = 30 _____

**11.** 810 ÷ ▢ = 90 _____

**12.** Divide 400 ÷ 4. Explain how patterns and place value can help.

_____

_____

**13.** Eileen collected 98 empty cans to recycle, and Carl collected 82 cans. They packed an equal number of cans into each of three boxes to take to the recycling center. How many cans were in each box?

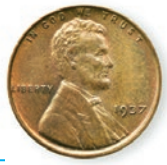
_____

**14.** It costs a baker $18 to make a small cake. He sells 8 small cakes for $240. How much more is the selling price of each cake than the cost?

_____

Name _____

## Problem Solving · Applications




**15.** Jamal put 600 pennies into 6 equal rolls. How many pennies were in each roll?

_____

**16.** Sela has 6 times as many coins now as she had 4 months ago. If Sela has 240 coins now, how many coins did she have 4 months ago?

_____

**17.** Chip collected 2,090 dimes. Sue collected 1,910 dimes. They divided all their dimes into 8 equal stacks. How many dimes are in each stack?

MATH on the Spot

_____

_____

**18.** MTR Mr. Roberts sees a rare 1937 penny. The cost of the penny is $210. If he saves $3 each week, will Mr. Roberts have enough money to buy the penny in one year? Explain.

_____

_____

_____

**19.** Mrs. Fletcher bought 5 coins for $32 each. Later, she sold all the coins for $300. How much more did Mrs. Fletcher receive for each coin than she paid? Explain.

_____

_____

_____

### Show the Math

Demonstrate Your Thinking

**20.** Which quotients are equal to 20? Mark all that apply.

Ⓐ 600 ÷ 2

Ⓑ 1,200 ÷ 6

Ⓒ 180 ÷ 9

Ⓓ 140 ÷ 7

Ⓔ 500 ÷ 5

## Cross-Curricular: Science

### Insect Flight

True flight is shared only by insects, bats, and birds. Flight in insects varies from the clumsy flight of some beetles to the acrobatic moves of dragonflies.

The wings of insects are not moved by muscles attached to the wings. Muscles in the middle part of the body, or thorax, move the wings. The thorax changes shape as the wings move.

**Insect Wing Beats in 3 Minutes**

| Insect | Approximate number of wing beats |
|---|---|
| aeschnid dragonfly | 6,900 |
| damselfly | 2,700 |
| large white butterfly | 2,100 |
| scorpion fly | 5,000 |

**21.** About how many times do a damselfly's wings beat in 1 minute?

_____

**22.** About how many times do a scorpion fly's wings beat in 6 minutes?

_____

**23.** In one minute, about how many more times do a damselfly's wings beat than a large white butterfly's wings?

_____

**24.** The answer is about 2,300 times. What's the question?

_____

_____

Name _____

# Divide Tens, Hundreds, and Thousands

Go Online
Interactive Examples

**Use basic facts and place value to find the quotient.**

**1.** 3,600 ÷ 4 = 900

**Think:** 3,600 is 36 hundreds.

Use the basic fact 36 ÷ 4 = 9.

So, 36 hundreds ÷ 4 = 9 hundreds, or 900.

**2.** 240 ÷ 6 = _____

**3.** 5,400 ÷ 9 = _____

**4.** 300 ÷ 5 = _____

**5.** 4,800 ÷ 6 = _____

**6.** 420 ÷ 7 = _____

**7.** 150 ÷ 3 = _____

**8.** 6,300 ÷ 7 = _____

**9.** 1,200 ÷ 4 = _____

**10.** 360 ÷ 6 = _____

## Problem Solving Real World

**11.** At an assembly, 180 students sit in 9 equal rows. How many students sit in each row?

_____

**12.** Hilary can read 560 words in 7 minutes. How many words can Hilary read in 1 minute?

_____

**13.** A company produces 7,200 gallons of bottled water each day. The company puts 8 one-gallon bottles in each carton. How many cartons are needed to hold all the one-gallon bottles produced in one day?

_____

**14.** An airplane flew 2,400 miles in 4 hours. If the plane flew the same number of miles each hour, how many miles did it fly in 1 hour?

_____

**15.** WRITE Math Explain how your knowledge of place value helps you divide a number in the thousands by whole numbers to 10. Give an example to support your explanation.

_____

_____

## Lesson Check

**16.** A baseball player hits a ball 360 feet to the outfield. It takes the ball 4 seconds to travel this distance. How many feet does the ball travel in 1 second?

**17.** Sebastian rides his bike 2,000 meters in 5 minutes. How many meters does he bike in 1 minute?

## Spiral Review

**18.** A full container of juice holds 64 fluid ounces. How many 7-fluid-ounce servings of juice are in a full container?

**19.** Paolo pays $244 for 5 identical calculators. About how much does Paolo pay for one calculator?

**20.** A football team paid $28 per jersey. They bought 16 jerseys. How much money did the team spend on jerseys?

**21.** Suzanne bought 50 apples at the apple orchard. She bought 4 times as many red apples as green apples. How many more red apples than green apples did Suzanne buy?

Name _____

# Estimate Quotients Using Compatible Numbers

**Florida's B.E.S.T.**

- **Number Sense & Operations** 4.NSO.2.4, 4.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

**I Can** use estimation to help solve division problems.

## UNLOCK the Problem Real World

A horse's heart beats 132 times in 3 minutes. About how many times does it beat in 1 minute?

You can use compatible numbers to estimate quotients.

**Compatible numbers** are numbers that are easy to compute mentally.

## Example 1 Estimate. 132 ÷ 3

**STEP 1** Find a number close to 132 that divides easily by 3. Use basic facts.

12 ÷ 3 is a basic fact. 120 divides easily by 3.

15 ÷ 3 is a basic fact. 150 divides easily by 3.

**Think:** Choose 120 because it is closer to 132.

**STEP 2** Use place value.

120 = _____ tens

12 ÷ 3 = _____

12 tens ÷ 3 = _____ tens

120 ÷ 3 = _____

So, a horse's heart beats about _____ times a minute.

## Example 2 Use compatible numbers to find two estimates that the quotient is between. 1,382 ÷ 5

**STEP 1** Find two numbers close to 1,382 that divide easily by 5.

_____ ÷ 5 is a basic fact.
1,000 divides easily by 5.

_____ ÷ 5 is a basic fact.
1,500 divides easily by 5.

1,382 is between _____ and _____.

**STEP 2** Divide each number by 5. Use place value.

1,000 ÷ 5

_____ hundreds ÷ 5 = _____ hundreds, or _____

1,500 ÷ 5

_____ hundreds ÷ 5 = _____ hundreds, or _____

So, 1,382 ÷ 5 is between _____ and _____.

**Math Talk**

**MTR 6.1** Assess the reasonableness of solutions.

Explain which estimate you think is more reasonable.

## Share and Show

Math Board

**1.** Estimate. 1,718 ÷ 4

Think: What number close to 1,718 is easy to divide by 4?

_____ is close to 1,718. What basic fact can you use? _____ ÷ 4

_____ is close to 1,718. What basic fact can you use? _____ ÷ 4

Choose 1,600 because _____.

16 ÷ 4 = _____

1,600 ÷ _____ = _____

1,718 ÷ 4 is about _____.

Math Talk

**MTR 2.1** Demonstrate understanding in multiple ways.

How might your estimate change if the problem were 1,918 ÷ 4?

**Use compatible numbers to estimate the quotient.**

**2.** 455 ÷ 9

_____

**3.** 1,509 ÷ 3

_____

**4.** 176 ÷ 8

_____

**5.** 2,795 ÷ 7

_____

## On Your Own

**Use compatible numbers to find two estimates that the quotient is between.**

**6.** 5,321 ÷ 6

_____

**7.** 1,765 ÷ 6

_____

**8.** 1,189 ÷ 3

_____

**9.** 2,110 ÷ 4

_____

**MTR** **Estimate to compare. Write <, >, or =.**

**10.** 613 ÷ 3 ◯ 581 ÷ 2

_____ estimate _____ estimate

**11.** 364 ÷ 4 ◯ 117 ÷ 6

_____ estimate _____ estimate

**12.** 2,718 ÷ 8 ◯ 963 ÷ 2

_____ estimate _____ estimate

**13.** If Cade shoots 275 free throws in 2 hours, about how many can he shoot in 5 hours?

_____

_____

**14.** Mark each equation as true or false.

a. 280 ÷ 7 = 2,000 ÷ 5

○ true ○ false

b. 450 ÷ 9 = 250 ÷ 5

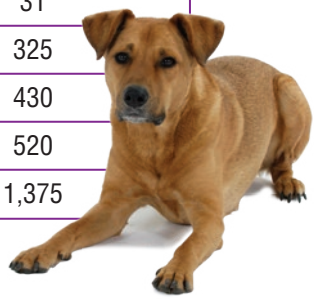
○ true ○ false

Name _____

## Problem Solving · Applications

**Use the table for 15–17.**

| Animal Heartbeats in 5 Minutes | |
|---|---|
| **Animal** | **Number of heartbeats** |
| whale | 31 |
| cow | 325 |
| pig | 430 |
| dog | 520 |
| chicken | 1,375 |



**15.** About how many times does a chicken's heart beat in 1 minute?

_____

**16.** About how many times does a cow's heart beat in 2 minutes?

_____

**17.** MTR About how many times as fast does a cow's heart beat as a whale's?

_____

**18.** Martha had 154 stamps and her sister had 248 stamps. They combined their collections and put the stamps in an album. If they want to put 8 stamps on each page, about how many pages would they need?

MATH on the Spot

_____

**19.** Jaime and his two brothers divided a package of 125 toy cars equally. About how many cars did each of them receive?

_____

### Show the Math

Demonstrate Your Thinking

**20.** Harold and his brother collected 2,019 cans over a 1-year period. Each boy collected the same number of cans. About how many cans did each boy collect? Explain how you found your answer.

_____

_____

_____

## Cross-Curricular: Reading

### Cause and Effect

The reading skill *cause and effect* can help you understand how one detail in a problem is related to another detail.

| Bike Shop Layaway Plans | |
|---|---|
| Plan A | 3 months (3 equal payments) |
| Plan B | 6 months (6 equal payments) |

Chet wants to buy a new bike that costs $276. Chet mows his neighbor's lawn for $15 each week. Since Chet does not have money saved, he needs to decide which layaway plan he can afford to buy the new bike.

| **Cause:** | → | **Effect:** |
|---|---|---|
| Chet does not have money saved to purchase the bike. | | Chet will have to decide which layaway plan he can afford to purchase the bike. |

**Which plan should Chet choose?**

3-month layaway:

$276 ÷ 3

Estimate.

$270 ÷ 3 _____ per month

6-month layaway:

$276 ÷ 6

Estimate.

$300 ÷ 6 _____ per month

Chet earns $15 each week. Since there are usually 4 weeks in a month, multiply to see which payment he can afford.

$15 × 4 = _____

So, Chet can afford the _____ layaway plan.

**Use estimation to solve.**

**21.** Sofia wants to buy a new bike that costs $214. Sofia helps her grandmother with chores each week for $18. Estimate to find which layaway plan Sofia should choose and why.

_____

_____

_____

_____

**22.** WRITE Math Describe a situation when you have used *cause and effect* to help you solve a math problem.

_____

_____

_____

_____

_____

Name _____

# Estimate Quotients Using Compatible Numbers

Go Online
Interactive Examples

**Use compatible numbers to estimate the quotient.**

**1.** 389 ÷ 4

400 ÷ 4 = 100

**2.** 358 ÷ 3 _____

**3.** 784 ÷ 8 _____

**4.** 179 ÷ 9 _____

**5.** 315 ÷ 8 _____

**6.** 2,116 ÷ 7 _____

**7.** 4,156 ÷ 7 _____

**8.** 474 ÷ 9 _____

**Use compatible numbers to find two estimates that the quotient is between.**

**9.** 1,624 ÷ 3 _____

**10.** 2,593 ÷ 6 _____

**11.** 1,045 ÷ 2 _____

**12.** 1,754 ÷ 9 _____

## Problem Solving Real World

**13.** A grocery store sold 2,267 bananas in 7 days. About the same number of bananas were sold each day. About how many bananas did the store sell each day?

_____

**14.** Kale has 731 books. He puts about the same number of books on each of 9 shelves in his bookcase. About how many books are on each shelf?

_____

**15.** WRITE Math How can you estimate 1,506 ÷ 2 so that it is close to the actual answer of 753?

_____

_____

_____

## Lesson Check

**16.** Jamal is planting seeds for a garden nursery. He plants 9 seeds in each container. If Jamal has 296 seeds to plant, about how many containers will he use?

**17.** Chiyo purchased a set of vintage beads. There are 2,140 beads in the set. If she uses the beads to make bracelets that have 7 beads each, about how many bracelets can she make?

## Spiral Review

**18.** A train traveled 360 miles in 6 hours. How many miles per hour did the train travel?

**19.** An orchard has 12 rows of pear trees. Each row has 15 pear trees. How many pear trees are there in the orchard?

**20.** Lena rounded 366,458 to 370,000. To which place did Lena round the number?

**21.** Mr. Jessup, an airline pilot, flies 1,350 miles a day. How many miles will he fly in 8 days?

Name _____

# Division and the Distributive Property

**Florida's B.E.S.T.**

- **Number Sense & Operations** 4.NSO.2.1, 4.NSO.2.5, 4.NSO.2.4
- **Mathematical Thinking & Reasoning** MTR.1.1, MRT.2.1, MTR.5.1

**I Can** use the Distributive Property to help solve division problems.

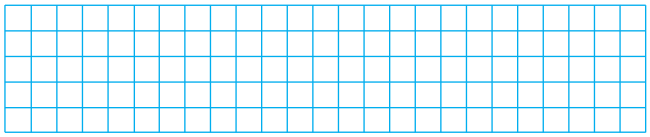
## Investigate

**Materials** ■ color pencils ■ grid paper

You can use a model and the Distributive Property to break apart numbers to make them easier to divide.

To use the Distributive Property with division, find the quotient each smaller rectangle represents. Then find the sum of the quotients.

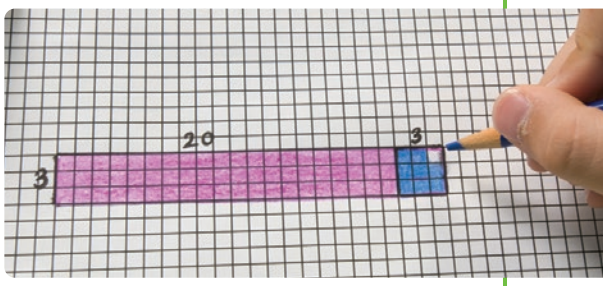
**A.** Outline a rectangle on a grid to model 69 ÷ 3.



Shade columns of 3 until you have 69 squares.

How many groups of 3 can you make? _____

**B.** Think of 69 as 60 + 9. Break apart the model into two rectangles to show (60 + 9) ÷ 3. Label and shade the smaller rectangles. Use two different colors.



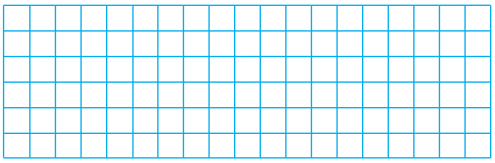

**C.** Each rectangle models a division.

69 ÷ 3 = ( _____ ÷ 3) + ( _____ ÷ 3)

= _____ + _____

= _____

**D.** Outline another model to show 68 ÷ 4.



How many groups of 4 can you make? _____

**E.** Think of 68 as 40 + 28. Break apart the model, label, and shade to show two divisions.

68 ÷ 4 = ( _____ ÷ 4) + ( _____ ÷ 4)

= _____ + _____

= _____

## Draw Conclusions

1. Explain how each small rectangle models a quotient and a product in Step C.

2. Compare your answer in Step A to the final quotient in Step C. What can you conclude?

3. To find the quotient $91 \div 7$, would you break up the dividend into $90 + 1$ or $70 + 21$? Explain.

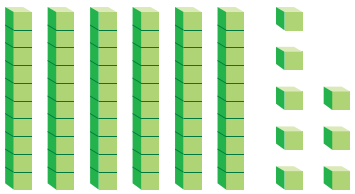
## Make Connections

Math Talk

**MTR 5.1** Use patterns and structure.

Describe another way you could use the Distributive Property to solve $68 \div 4$.

You can model $68 \div 4$ using base-ten blocks.

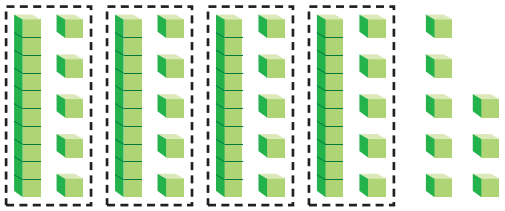


**STEP 1** Model 68.

$68 =$ _____ $+$ _____

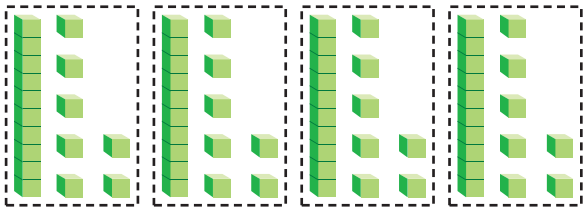
**STEP 2** Share the tens equally among 4 groups with 2 tens left. Regroup 2 tens as 20 ones. Share them equally among the 4 groups.

$60 \div 4 =$ _____



**STEP 3** Share the 8 ones equally among the 4 equal groups.

$8 \div 4 =$ _____



So, $68 \div 4 = (60 \div 4) + (8 \div 4) =$ _____ $+$ _____ $=$ _____

Name _____

## Share and Show

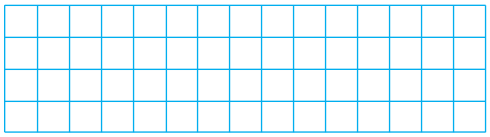
Math Board

**Model the division on the grid.**

**1.** $26 \div 2 = (\_\_\_\_ \div 2) + (\_\_\_\_ \div 2)$

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

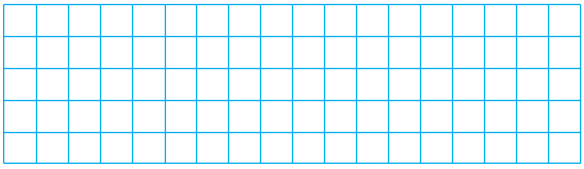
$= \_\_\_\_$



**2.** $45 \div 3 = (\_\_\_\_ \div 3) + (\_\_\_\_ \div 3)$

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

$= \_\_\_\_$



**Find the quotient.**

**3.** $86 \div 2$

$= (\_\_\_\_ \div 2) + (\_\_\_\_ \div 2)$

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

$= \_\_\_\_$

**4.** $208 \div 4$

$= (\_\_\_\_ \div 4) + (\_\_\_\_ \div 4)$

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

$= \_\_\_\_$

**Use base-ten blocks to model the quotient. Then record the quotient.**

**5.** $88 \div 4 = \_\_\_\_$

**6.** $36 \div 3 = \_\_\_\_$

**7.** $186 \div 6 = \_\_\_\_$

## On Your Own

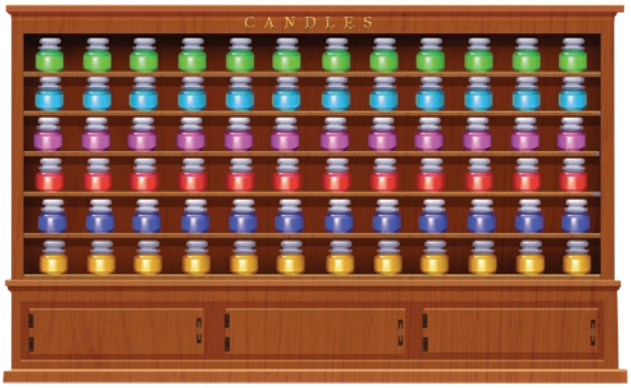
**8.** WRITE Math Explain how you can model finding quotients using the Distributive Property.

**9.** Justin earned $50 mowing lawns and $34 washing cars. He wants to divide his money into 3 equal accounts. How much will he put in each account? Explain.

**10.** Christelle went to a gift shop. The shop sells candles in a variety of sizes and colors. The picture shows a display of candles.

Write a problem that can be solved using the picture.

**MATH on the Spot**




**Pose a problem.**

**Solve your problem.**

- **MTR** Describe how you could change the problem by changing the number of rows of candles. Then solve the problem.

**11.** For 11a–11d, do the given expressions represent a way to break apart 147 ÷ 7? Choose Yes or No.

| | | | |
|---|---|---|---|
| 11a. | $(135 \div 7) + (10 \div 7)$ | ○ Yes | ○ No |
| 11b. | $(147 \div 3) + (147 \div 4)$ | ○ Yes | ○ No |
| 11c. | $(140 \div 7) + (7 \div 7)$ | ○ Yes | ○ No |
| 11d. | $(70 \div 7) + (77 \div 7)$ | ○ Yes | ○ No |

Name _____



# Division and the Distributive Property

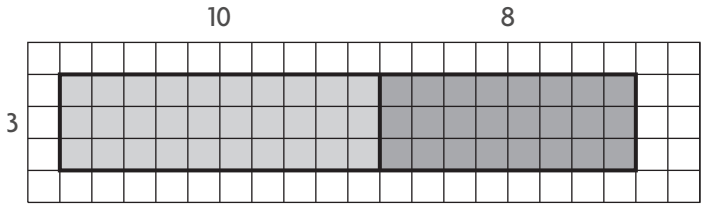
Go Online
Interactive Examples

**Find the quotient.**

**1.** $54 \div 3 = (\underline{30} \div 3) + (\underline{24} \div 3)$

$= \underline{10} + \underline{8}$

$= \underline{18}$




**2.** $81 \div 3 =$ _____

**3.** $232 \div 4 =$ _____

**4.** $305 \div 5 =$ _____

**5.** $246 \div 6 =$ _____

**6.** $69 \div 3 =$ _____

**7.** $477 \div 9 =$ _____

## Problem Solving Real World

**8.** Cecily picked 219 apples. She divided the apples equally into 3 baskets. How many apples are in each basket?

_____

**9.** Jordan has 260 basketball cards. He divides them into 4 equal groups. How many cards are in each group?

_____

**10.** The Wilsons drove 324 miles in 6 hours. If they drove the same number of miles each hour, how many miles did they drive in 1 hour?

_____

**11.** Phil has 189 stamps to put into his stamp album. He puts the same number of stamps on each of 9 pages. How many stamps does Phil put on each page?

_____

**12.** WRITE Math Explain how to use the Distributive Property to solve $48 \div 3$. Include a model to support your explanation.

_____

_____

## Lesson Check

**13.** A landscaping company planted 176 trees in 8 equal rows in the new park. How many trees did the company plant in each row?

**14.** Arnold can do 65 push-ups in 5 minutes. How many push-ups can he do in 1 minute?

## Spiral Review

**15.** Last Saturday, there were 1,486 people at the Cineplex. There were about the same number of people in each of the 6 theaters. Between which two numbers does the number of people in each theater fall?

**16.** Nancy walked 50 minutes each day for 4 days last week. Gillian walked 35 minutes each day for 6 days last week. How does the total number of minutes that Gillian walked compare to the total number of minutes that Nancy walked?

**17.** Three boys share 28 toy cars equally. How many cars did each boy get and how many were left over?

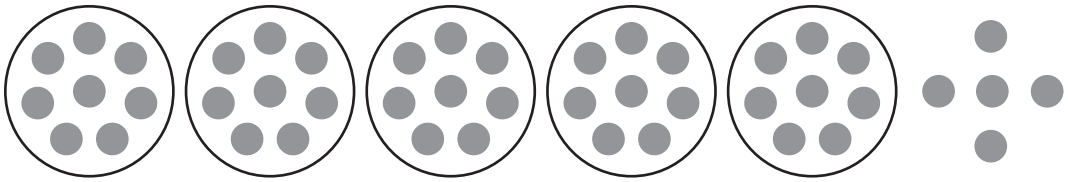
**18.** An airplane flies at a speed of 474 miles per hour. How many miles does the plane fly in 5 hours?

Name _____

Chapter 4

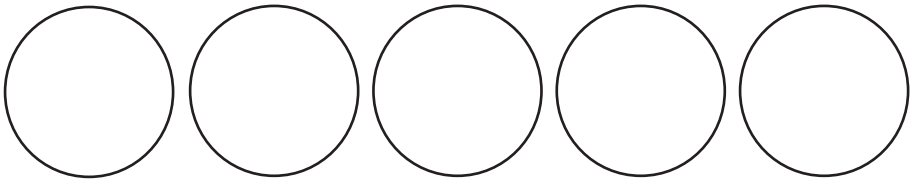
# Chapter Review

**1.** What is the remainder in the division problem modeled below?



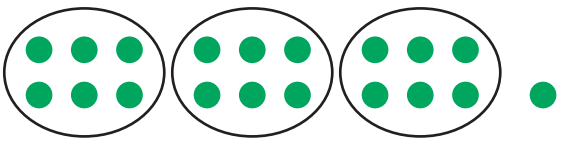
_____

**2.** Divide. Complete the picture to help.
24 ÷ 5



_____

**3.** Look at the model. What division does it show?



_____ ÷ _____ → _____ _____

**4.** For problems 4a–4d, choose Yes or No to tell whether the division expression has a remainder.

| | | | |
|---|---|---|---|
| 4a. | 28 ÷ 4 | ○ Yes | ○ No |
| 4b. | 35 ÷ 2 | ○ Yes | ○ No |
| 4c. | 40 ÷ 9 | ○ Yes | ○ No |
| 4d. | 45 ÷ 5 | ○ Yes | ○ No |

5. A park guide plans the swan boat rides for 40 people. Each boat can carry 6 people at a time. What is the best way to interpret the remainder in this situation so that everyone gets a ride?

_____

_____

6. Nolan divides his 88 toy cars into boxes. Each box holds 9 cars. How many boxes does Nolan need to store all of his cars?

_____ boxes

7. A group of 140 tourists are going on a tour. The tour guide rents 15 vans. Each van holds 9 tourists.

## Part A

Write a division problem that can be used to find the number of vans needed to carry the tourists. Then solve.

## Part B

What does the remainder mean in the context of the problem?

## Part C

How can you use your answer to determine if the tour guide rented enough vans? Explain.

Name _____

**8.** Solve.

$3{,}200 \div 8 =$ _____

**9.** Which quotients are equal to 300? Mark all that apply.

(A) $1{,}200 \div 4$ (C) $2{,}400 \div 8$ (E) $90 \div 3$

(B) $180 \div 9$ (D) $2{,}100 \div 7$ (F) $3{,}000 \div 3$

**10.** Margo estimated $188 \div 5$ to be between 30 and 40. Which basic facts did she use to help her estimate? Mark all that apply.

(A) $10 \div 5$ (B) $15 \div 5$ (C) $20 \div 5$ (D) $25 \div 5$

**11.** Mathias and his brother divided 2,029 marbles equally. About how many marbles did each of them receive?

**12.** For 12a–12d, choose Yes or No to show how to use the Distributive Property to break apart the dividend to find the quotient $132 \div 6$.

| | | | |
|---|---|---|---|
| 12a. | $(115 \div 6) + (17 \div 6)$ | ○ Yes | ○ No |
| 12b. | $(100 \div 6) + (32 \div 6)$ | ○ Yes | ○ No |
| 12c. | $(90 \div 6) + (42 \div 6)$ | ○ Yes | ○ No |
| 12d. | $(72 \div 6) + (60 \div 6)$ | ○ Yes | ○ No |

**13.** Ishmael has 37 saplings. He wants to plant them in the park in 4 equal rows. How many saplings will he plant in each row? Explain how you know.

**14.** Which quotient has a different remainder?

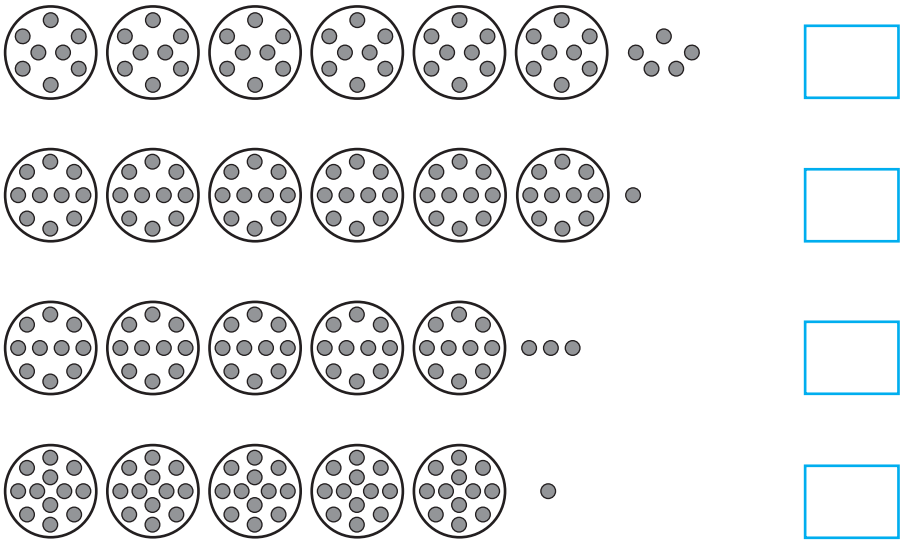
- **A** $16 \div 3$
- **B** $25 \div 3$
- **C** $43 \div 3$
- **D** $56 \div 3$

**15.** Alejandro kicks a ball 120 meters to Tao. It takes the ball 6 seconds to travel from Alejandro to Tao. How many meters does the ball travel in 1 second? Show your work.

Name _____

**16.** Which model matches each expression? Write the letter in the box next to the model.

Ⓐ 61 ÷ 5 Ⓑ 53 ÷ 6 Ⓒ 61 ÷ 6 Ⓓ 53 ÷ 5



**17.** Volunteers have 67 bags of mulch to use in the flower beds outside the library. They use the same number of bags of mulch in each of the 8 flower beds.

## Part A

How many bags of mulch did the volunteers use in each flower bed? Explain how you know.

## Part B

What does the remainder represent?

**18.** Jacques climbs 3,560 feet in 7 days. Which equation uses compatible numbers to find the best estimate of the number of feet he climbs each day?

(A) $3{,}500 \div 7 = 500$

(B) $3{,}000 \div 5 = 600$

(C) $3{,}560 \div 10 = 356$

(D) $4{,}000 \div 10 = 400$

**19.** Between which two numbers is $4{,}482 \div 6$?

| 300 | 400 | 600 | 700 | 800 |
|---|---|---|---|---|

The quotient is between _____ and _____.

**20.** Write the missing numbers to show how to use the Distributive Property to find the quotient.

$216 \div 4 = (\_\_\_\_\_ \div 4) + (\_\_\_\_\_ \div 4)$

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

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

**21.** Amelia reads 568 pages in 8 days. If she read the same number of pages each day, how many pages did she read in 1 day?

_____ pages

**22.** The Ayalas drove 275 miles in 5 hours. If they drove the same number of miles each hour, how many miles did they drive in 1 hour?

_____ miles