Show What You Know ✓

Check your understanding of important skills.

Name _____

▶ **Use Arrays to Divide** Draw to complete each array.
Then complete the number sentence.

1. ■ ■ ■ ■

2. ■
   ■
   ■

$8 \div 4 =$ _____

$21 \div 3 =$ _____

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

3. 4: _____

4. 10: _____

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

5.	626	6.	744	7.	5,413	8.	8,681
	− 8		− 36		−2,037		− 422

MATH DETECTIVE

WITH

CARMEN SANDIEGO™

Each digit in the division example has
been replaced with the same letter
throughout. (r stands for remainder.)
The digits used were 1, 2, 3, 4, 5, 7, and 9.
Be a Math Detective and find the
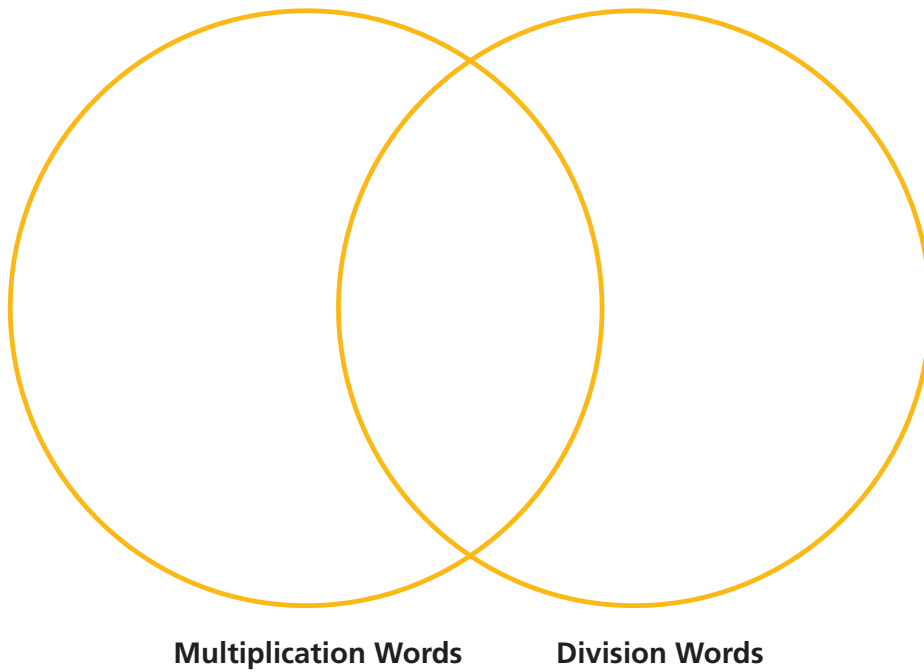numbers. Clue: U is 5.

```
        SU rE
    U)CAN
     −CU
      IN
     −IU
       E
```

Vocabulary Builder

▶ **Visualize It** ●

Sort the words into the Venn diagram.

Multiplication Words   **Division Words**

▶ **Understand Vocabulary** ●

Write the word that answers the riddle.

1. I am the method of dividing in which multiples of the divisor are subtracted from the dividend and then the quotients are added together.

_____

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

_____

3. I am the amount left over when a number cannot be

divided equally. _____

4. I am the number that divided the dividend.

_____

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Name _____

Estimate Quotients Using Multiples

Essential Question How can you use multiples to estimate quotients?

🔑 UNLOCK the Problem REAL WORLD

The bakery made 110 pumpkin muffins. They will be packed in boxes with 8 muffins in each box. About how many boxes will there be?

You can use multiples to estimate.

A **multiple** of a number is the product of a number and a counting number. 1, 2, 3, 4, and so on, are counting numbers.

🔑 **Estimate. 110 ÷ 8**

Think: What number multiplied by 8 is about 110?

STEP 1 List the multiples of 8 until you reach 110 or greater.

Counting number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Multiple of 8	8	16	24	32			56	64				96		112

STEP 2 Find the multiples of 8 that 110 is between.

$13 \times 8 =$ _____

$14 \times 8 =$ _____

110 is between _____ and _____, so 110 ÷ 8 is between 13 and 14.

110 is closest to _____, so 110 ÷ 8 is about _____.

So, there will be about _____ boxes.

Try This!

List the next 8 multiples of 10.

10, 20, _____

List the next 7 multiples of 100.

100, 200, _____

Math Talk MATHEMATICAL PRACTICES
When estimating a quotient, how do you know which two numbers it is between? **Explain.**

🔒 **Example** Estimate 196 ÷ 4

Think: What number times 4 is about 196?

STEP 1 List the next 6 multiples of 4.

4, 8, 12, 16, _____

Are any multiples close to 196? _____

Think: If I multiply by multiples of 10, the products will be greater.
Using multiples of 10 will get me to 196 faster.

STEP 2 Multiply 4 by multiples of 10.

$10 \times 4 = 40$

$20 \times 4 = 80$

$30 \times 4 =$ _____

$40 \times 4 =$ _____

$50 \times 4 =$ _____

The quotient is between 40 and 50.

_____ $\times$ 4 is closest to _____, so 196 ÷ 4 is about _____.

Share and Show 📝 MATH BOARD ....

1. A restaurant has 68 chairs. There are six chairs at each table.
   About how many tables are in the restaurant?

   Estimate. 68 ÷ 6

   Think: What number times 6 is about 68?

   $10 \times 6 =$ _____

   $11 \times 6 =$ _____

   $12 \times 6 =$ _____

   68 is closest to _____, so the best estimate is

   about _____ tables are in the restaurant.

MATHEMATICAL PRACTICES

Math Talk When do you multiply the divisor by multiples of 10 to estimate a quotient? **Explain.**

Name _____

Find two numbers the quotient is between. Then estimate the quotient.

✅ **2.** 41 ÷ 3

_____

_____

✅ **3.** 192 ÷ 5

_____

_____

On Your Own ·····································

Find two numbers the quotient is between. Then estimate the quotient.

4. 90 ÷ 7

_____

_____

5. 67 ÷ 4

_____

_____

6. 281 ÷ 9

_____

_____

7. 102 ÷ 7

_____

_____

8. 85 ÷ 6

_____

_____

9. 220 ÷ 8

_____

_____

10. 443 ÷ 5

_____

_____

11. 95 ÷ 8

_____

_____

12. 49 ÷ 3

_____

_____

13. 249 ÷ 8

_____

_____

14. 412 ÷ 7

_____

_____

15. 177 ÷ 9

_____

_____

H.O.T. **Decide whether the actual quotient is greater than or less than the estimate given. Write < or >.**

16. 83 ÷ 8 ◯ 10

17. 155 ÷ 4 ◯ 40

18. 70 ÷ 6 ◯ 11

19. 416 ÷ 5 ◯ 80

20. 194 ÷ 2 ◯ 90

21. 200 ÷ 3 ◯ 70

Problem Solving • REAL WORLD

22. **H.O.T.** If a bottlenose dolphin can eat 175 pounds of fish, squid, and shrimp in a week, about how many pounds of food does it eat in a day? Milo says the answer is about 20 pounds. Leah says the answer is about 30 pounds. Who is correct? **Explain.**

_____

_____

_____

_____

23. A mother bottlenose ate about 278 pounds of food in one week. About how much food did she eat in a day?

_____

SHOW YOUR WORK

24. **Write Math** ▸ Four families went out for lunch. The total food bill came to $167. The families also left a $30 tip for the waitress. If each family spent the same amount, about how much did each family spend on dinner? **Explain** how you found your answer.

_____

_____

_____

25. **What's the Question?** A dolphin's heart beats 688 times in 6 minutes. Answer: about 100 times.

_____

_____

26. **Test Prep** Small groups of about 7 bottlenose dolphins live together in pods. Sometimes several pods join in a herd to help protect each other. About how many pods are there in a herd of 204 dolphins?

(A) about 20   (C) about 40

(B) about 30   (D) about 1,400

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FOR MORE PRACTICE:
Standards Practice Book, pp. P69–P70

Remainders

Essential Question How can you use models to divide whole numbers that do not divide evenly?

Investigate

Materials ■ counters

Erica and 2 friends are playing a game of dominoes. There are 28 dominoes in the set. Erica 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.
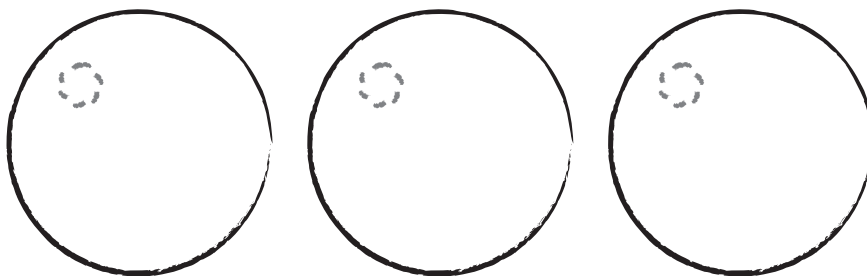
C. Find the number of counters in each group and the number of counters left over. Record your answer.

_____ counters in each group

_____ counter left over

Draw Conclusions ....

1. How many dominoes does each player receive? _____

   How many dominoes are left over? _____

2. **H.O.T.** **Explain** how the model helped you find the number of dominoes each player receives. Why is 1 counter left outside the equal groups?

   _____

   _____

   _____

3. **Apply** Use counters to represent a set of 28 dominoes. How many players can play dominoes if each player receives 9 dominoes? Will any dominoes be left over? Explain.

   _____

   _____

Make Connections ....

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

Use counters to find 39 ÷ 5.

• Use 39 counters.

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

> **Draw a quick picture to show your work.**
>
> ◯　◯　◯　◯　◯
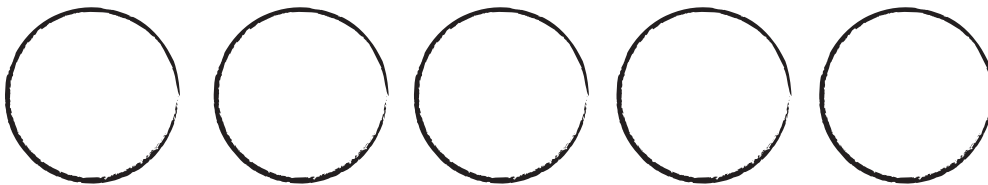
For 39 ÷ 5, the quotient is _____ and the remainder is _____, or 7 r4.

MATHEMATICAL PRACTICES

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

Share and Show 🖊️ MATH BOARD . . . .

Use counters to find the quotient and remainder.

1. $10 \div 3$

2. $28 \div 5$

3. $15 \div 6$

4. $11 \div 3$

_____

_____

_____

_____

5. $9\overline{)26}$

6. $22 \div 3$

7. $4\overline{)19}$

8. $4\overline{)38}$

_____

_____

_____

_____

9. $29 \div 4$

10. $34 \div 5$

11. $25 \div 3$

✓**12.** $7\overline{)20}$

_____

_____

_____

_____

Divide. Draw a quick picture to help.

13. $19 \div 3$

14. $5\overline{)47}$

_____

_____

15. $4\overline{)35}$

✓**16.** $23 \div 8$

_____

_____

17. 🖊️ **Write Math** ➤ **Explain** how you use a quick picture to find the quotient and remainder.

_____

_____

_____

_____

Problem Solving REAL WORLD

H.O.T. What's the Error?

18. 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?

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

Look at the way Frank 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.

FOR MORE PRACTICE:
Standards Practice Book, pp. P71–P72

Interpret the Remainder

Essential Question How can you use remainders in division problems?

🔑 UNLOCK the Problem ▷ REAL WORLD

Magda 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.

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

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!

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

$5\overline{)32}$

Each person gets _____ ounces.

Math Talk MATHEMATICAL PRACTICES
Explain what the 2 in the answer represents.

🔒 Other Ways

Ⓐ Use only the quotient.

Ben 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 Ben show around?

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

The quotient is _____ .

$$\begin{array}{r} 11 \ \ r\ \square \\ 7\overline{)80} \end{array}$$

The remainder is _____ .

Ben 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, Ben gives tours to _____ groups of 7 people.

Ⓑ Add 1 to the quotient.

If Ben 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, Ben will have to give 1 more tour.

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

Ⓒ Use only the remainder.

Ben 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, Ben's last tour will have _____ people.

Try This!

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

Divide. $31 \div 9$ _____

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

Math Talk **Explain** why you would not write the remainder as a fraction when you find the number of vans needed.

Name _____

Share and Show MATH BOARD ....

1. Olivia 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.

   $$6\overline{)53} \quad \square \, r \, \square$$

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

   _____

Interpret the remainder to solve.

2. **What if** Olivia 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 15 hours in all. Each practice session is 2 hours long. How many full practice sessions does Juan complete?

   _____

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 REAL WORLD

Use the picture for 7–9.

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

_____

8. **H.O.T. Pose a Problem** Write a question about Cho and the sock puppets for which the answer is 3. **Explain** the answer.

_____

_____

_____

_____

9. **Write Math** ▶ How many more buttons will Cho need if she wants to make 12 puppets? **Explain.**

_____

_____

_____

_____

SHOW YOUR WORK

10. **H.O.T.** Jonah cuts a board that is 33 inches long into 4 pieces of equal length. He uses the pieces for the sides of a picture frame. He puts an extra 2-inch wide trim on each side of the frame. How wide is the final frame?

_____

11. **Test Prep** Mr. Alia gives a "Good Job" badge to each of the 74 students who help at a school event. There are 8 badges in a package. How many packages will he open?

(A) 2   (C) $9\frac{1}{4}$

(B) 9   (D) 10

Name _____

Divide Tens, Hundreds, and Thousands

Essential Question How can you divide numbers through thousands by whole numbers through 10?

🔑 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   MATHEMATICAL PRACTICES
Describe the pattern in the place value of the dividends and quotients.

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

_____

_____

Share and Show

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.** 200 ÷ 5 = _____   **8.** 240 ÷ 4 = _____

9. 810 ÷ 9 = _____   **10.** 6,400 ÷ 8 = _____   **11.** 3,500 ÷ 7 = _____

12. 5,000 ÷ 5 = _____   **13.** 9,000 ÷ 3 = _____   **14.** 3,000 ÷ 5 = _____

Algebra **Find the unknown number.**

15. 420 ÷ ■ = 60 _____   **16.** ■ ÷ 4 = 30 _____   **17.** 810 ÷ ■ = 90 _____

18. **H.O.T.** Divide 400 ÷ 40. **Explain** how patterns and place value can help.

_____

_____

_____

Find the quotient.

19. $25 \div 5 =$ _____

$250 \div 5 =$ _____

$2{,}500 \div 5 =$ _____

20. $18 \div 2 =$ _____

$180 \div 2 =$ _____

$1{,}800 \div 2 =$ _____

21. $63 \div 9 =$ _____

$630 \div 9 =$ _____

$6{,}300 \div 9 =$ _____

22. Explain what you notice about the quotients in Exercises 19–21.

_____

_____

Problem Solving REAL WORLD

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

_____

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

_____

SHOW YOUR WORK

25. H.O.T. 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?

_____

_____

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

_____

_____

_____

27. Carine sold $320 worth of cookies. If each box of cookies costs $4, how many boxes did she sell?

_____

28. Test Prep Which number sentence is not true?

(A) $150 \div 5 = 30$

(C) $4{,}500 \div 9 = 500$

(B) $400 \div 8 = 500$

(D) $5{,}600 \div 7 = 800$

Connect to 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

29. About how many times does a damselfly's wings beat in 1 minute?

_____

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

_____

31. **H.O.T.** In one minute, about how many more times do a damselfly's wings beat than a large white butterfly's wings?

_____

32. What's the Question? The answer is about 2,300 times.

_____

_____

Name _____

Estimate Quotients Using Compatible Numbers

Essential Question How can you use compatible numbers to estimate quotients?

🔑 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.

- Will a horse's heart beat more or fewer than 132 times in 1 minute?

  _____

- What operation will you use to solve the problem?

  _____

🔑 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 MATHEMATICAL PRACTICES
Explain which estimate you think is more reasonable.

Share and Show

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 _____

MATHEMATICAL PRACTICES

Math Talk **Explain** how your estimate might 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 estimate the quotient.

6. 163 ÷ 2

7. 500 ÷ 7

8. 1,421 ÷ 5

9. 2,642 ÷ 8

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

10. 5,321 ÷ 6

11. 1,765 ÷ 6

12. 1,189 ÷ 3

13. 2,110 ÷ 4

H.O.T. **Algebra** Estimate to compare. Write <, >, or =.

14. 613 ÷ 3 ◯ 581 ÷ 2

15. 364 ÷ 4 ◯ 117 ÷ 6

16. 2,718 ÷ 8 ◯ 963 ÷ 2

_____   _____
estimate   estimate

_____   _____
estimate   estimate

_____   _____
estimate   estimate

Problem Solving REAL WORLD

Use the table for 17–20.

Animal Heartbeats in 5 Minutes

Animal	Number of Heartbeats
Whale	31
Cow	325
Pig	430
Dog	520
Chicken	1,375

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

_____

18. **H.O.T.** About how many times does a cow's heart beat in 2 minutes?

_____

19. **H.O.T.** About how many times faster does a cow's heart beat than a whale's?

_____

SHOW YOUR WORK

20. **Write Math** **What's the Question?** The answer is about 100 beats in 1 minute.
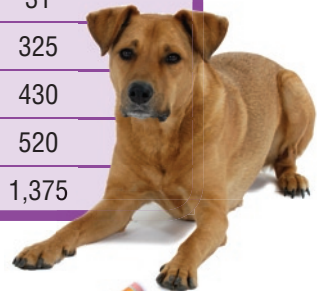
_____

_____

_____

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

_____

22. **Test Prep** A monkey's heart beats 1,152 times in 6 minutes. Which is the best estimate of the number of times its heart beats in 1 minute?
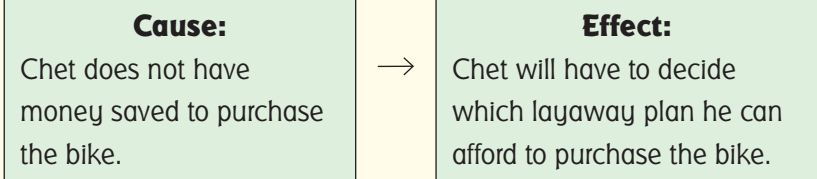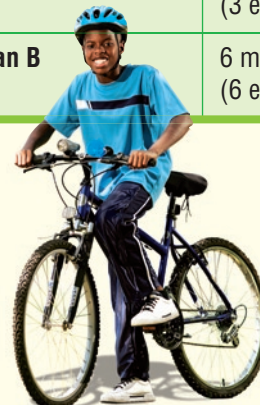
Ⓐ 100

Ⓑ 200

Ⓒ 1,000

Ⓓ 2,000

Connect to 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.

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.

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

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.

$\rightarrow$

Which plan should Chet choose?

3-month layaway:

$276 ÷ 3

Estimate.

$270 ÷ 3 _____

6-month layaway:

$276 ÷ 6

Estimate.

$300 ÷ 6 _____

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

$$\$15 \times 4 = \underline{\hspace{2cm}}$$

So, Chet can afford the _____ layaway plan.

Use estimation to solve.

23. 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.

_____

_____

_____

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

_____

_____

_____

_____

_____

FOR MORE PRACTICE:
Standards Practice Book, pp. P77–P78

Name _____

Division and the Distributive Property

Essential Question How can you use the Distributive Property to find quotients?

Investigate

Materials ■ color pencils ■ grid paper

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

The Distributive Property of division says that dividing a sum by a number is the same as dividing each addend by the number and then adding the quotients.
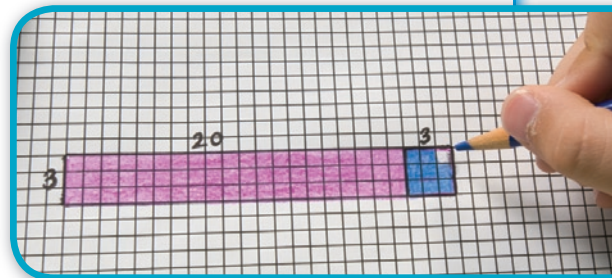
A. Outline a rectangle on a grid to model $69 \div 3$.

Shade columns of 3 until you have 69 squares.
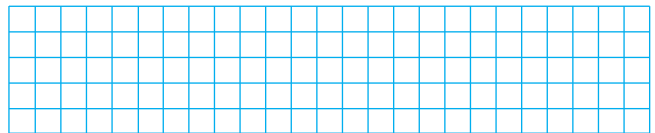
How many groups of 3 can you make? _____

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

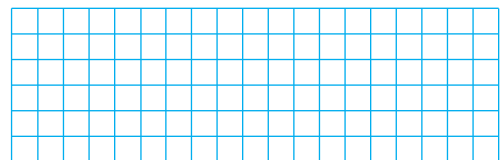**C.** Each rectangle models a division.

$69 \div 3 = (\underline{\hspace{1cm}} \div 3) + (\underline{\hspace{1cm}} \div 3)$

$= \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$= \underline{\hspace{1cm}}$

D. Outline another model to show $68 \div 4$.

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.

$68 \div 4 = (\underline{\hspace{1cm}} \div 4) + (\underline{\hspace{1cm}} \div 4)$

$= \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$= \underline{\hspace{1cm}}$

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. **H.O.T.** **Evaluate** To find the quotient 91 ÷ 7, would you break up the dividend into 90 + 1 or 70 + 21? Explain.
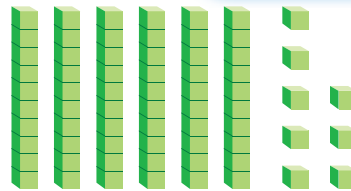
   _____

   _____

Make Connections . . . .

You can also model 68 ÷ 4 using base-ten blocks.

STEP 1 Model 68.
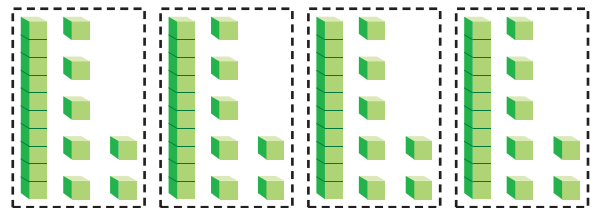
$68 =$ _____ $+$ _____

STEP 2 Divide the longs into 4 equal groups. 4 longs divide into 4 equal groups with 2 longs left. Regroup 2 longs as 20 small cubes. Divide them evenly among the 4 groups.

$60 ÷ 4 =$ _____
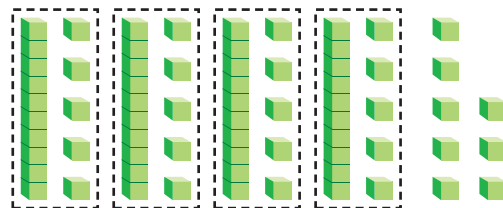
STEP 3 Divide the 8 small cubes into the 4 equal groups.

$8 ÷ 4 =$ _____

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

158

Name _____

Share and Show ![MATH BOARD] ....

Model the division on the grid.

1. $26 \div 2 = ($ _____ $\div 2) + ($ _____ $\div 2)$

    = _____ + _____

    = _____
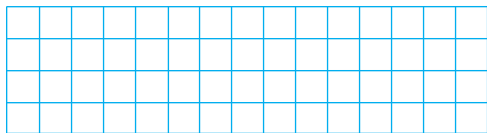
2. $45 \div 3 = ($ _____ $\div 3) + ($ _____ $\div 3)$

    = _____ + _____

    = _____
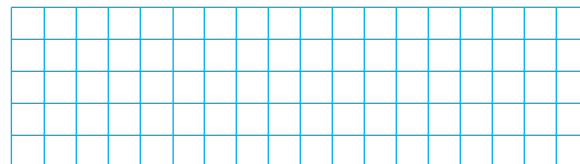
Find the quotient.

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. $186 \div 6 =$ _____

8. $96 \div 8 =$ _____

9. $189 \div 9 =$ _____

10. $54 \div 2 =$ _____

11. $707 \div 7 =$ _____

12. $255 \div 5 =$ _____

13. $612 \div 6 =$ _____

14. ![Write Math] ▶ **Explain** how you can model finding quotients using the Distributive Property.

_____

_____

_____

_____

Problem Solving REAL WORLD

H.O.T. Pose a Problem

15. 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.

Pose a problem.

Solve your problem.

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

Name _____

✓ Mid-Chapter Checkpoint

▶ Vocabulary

Choose the best term from the box to complete the sentence.

> **Vocabulary**
>
> counting numbers
> compatible numbers
> multiple
> remainder

1. A number that is the product of a number and a counting

   number is called a _____. **(p. 137)**

2. Numbers that are easy to compute mentally are called

   _____. **(p. 153)**

3. When a number cannot be divided evenly, the amount

   left over is called the _____. **(p. 142)**

▶ Concepts and Skills

Divide. Draw a quick picture to help.

4. 26 ÷ 3 _____

5. 19 ÷ 4 _____

Use basic facts and place value to find the quotient.

6. 810 ÷ 9 = _____

7. 210 ÷ 7 = _____

8. 3,000 ÷ 6 = _____

Use compatible numbers to estimate the quotient.

9. 635 ÷ 9

   _____

10. 412 ÷ 5

    _____

11. 490 ÷ 8

    _____

Use grid paper or base-ten blocks to model the quotient. Then record the quotient.

12. 63 ÷ 3 = _____

13. 85 ÷ 5 = _____

14. 168 ÷ 8 = _____

Fill in the bubble completely to show your answer.

15. Ana has 296 coins in her coin collection. She put the same number of coins in each of 7 jars. About how many coins are in each jar?

    Ⓐ about 20 coins

    Ⓑ about 40 coins

    Ⓒ about 200 coins

    Ⓓ about 400 coins

16. Which two estimates is the quotient $345 \div 8$ between?

    Ⓐ 40 and 50   Ⓒ 400 and 500

    Ⓑ 50 and 60   Ⓓ 500 and 600

17. A peanut vendor had 640 bags of peanuts. She sold the same number of bags of peanuts at each of 8 baseball games. How many bags of peanuts did she sell at each game?

    Ⓐ 8   Ⓒ 80

    Ⓑ 10   Ⓓ 800

18. There are 4 students on a team for a relay race. How many teams can be made from 27 students?

    Ⓐ 3   Ⓒ 6

    Ⓑ 4   Ⓓ 7

19. Eight teams of high school students helped clean up trash in the community. Afterwards, they shared 23 pizzas equally. How many pizzas did each team get?

    Ⓐ 2   Ⓒ $2\frac{7}{8}$

    Ⓑ $2\frac{3}{8}$ Ⓓ 3

Divide Using Repeated Subtraction

Essential Question How can you use repeated subtraction and multiples to find quotients?

Investigate

Materials ■ counters ■ grid paper

John is building a backyard pizza oven with an arch opening. He has 72 bricks. He will place 6 bricks at a time as he builds the oven. If he arranges the bricks in piles of 6, how many piles will he have?

You can use repeated subtraction to divide $72 \div 6$.

A. Begin with 72 counters. Subtract 6 counters.

How many are left? _____

B. Record the subtraction on grid paper as shown. Record the number of counters left and the number of times you subtracted.

	7	2		
−		6			1 time
					_____ times
					_____ times

C. Can you reach zero evenly? Explain.

_____

_____

D. Count the number of times you subtracted 6 counters. _____

So, there are _____ piles of 6 bricks.

Draw Conclusions

1. **Explain** the relationship between the divisor, the dividend, the quotient, and the number of times you subtracted the divisor from the dividend.

   _____

   _____

2. **Synthesize** What happens if you subtract multiples of 6? Complete the example at the right.

   • What multiples of 6 did you use? How did you use them?

   _____

   _____

   $6\overline{)72}$
   $-60 \leftarrow \boxed{} \times 6 \quad 10$
   $\boxed{}$
   $-12 \leftarrow \boxed{} \times 6 + \boxed{}$
   $\boxed{} \quad\quad\quad \boxed{}$

   • What numbers did you add? Why?

   _____

   _____

   • How did using multiples of the divisor help you?

   _____

   _____

3. **H.O.T. Justify** Why should you subtract 10×6 and not 9×6 or 20×6?

   _____

   _____

   _____

Math Talk

Explain how subtracting counters and counting back on a number line help you divide.

Make Connections

Another way to divide by repeated subtraction is to use a number line. Count back by 4s from 52 to find $52 \div 4$.

0   52
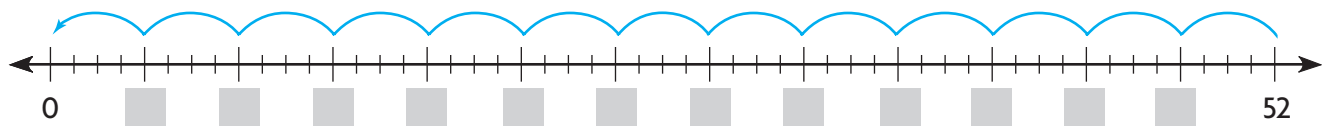
How many equal groups of 4 did you subtract? _____

So, $52 \div 4 =$ _____

Name _____

Share and Show MATH BOARD . . . .

Use repeated subtraction to divide.

✔ **1.** 84 ÷ 7 _____

✔ **2.** 60 ÷ 4 _____

3. 91 ÷ 8 _____

Draw a number line to divide.

4. 65 ÷ 5 = _____

5. 78 ÷ 6 = _____

6. 91 ÷ 7 = _____

7. **Write Math** ➤ Can you divide 32 by 3 evenly? Use the number line to explain your answer.
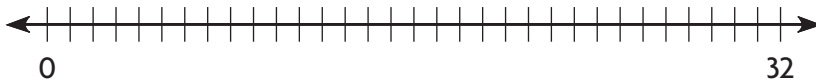
🔑 UNLOCK the Problem REAL WORLD

8. A new playground will be 108 feet long. Builders need to allow 9 feet of space for each piece of climbing equipment. They want to put as many climbers along the length of the playground as possible. How many climbers can they place?

a. What are you asked to find?

_____

_____

b. How can you use repeated subtraction to solve the problem?

_____

_____

c. Tell why you might use multiples of the divisor to solve the problem.

_____

_____

d. Show steps to solve the problem.

e. Complete the sentences.

There are _____ equal parts of the

playground, each _____ feet long.

So, _____ climbers can fit along the length of the playground.

9. There are 128 students in the fourth grade. Half of the students can use the playground at the same time. How many students is that?

_____

10. Test Prep An architect designed the school auditorium. There are 84 seats in Section A. Each row has 6 seats. How many rows of seats are in Section A?

Ⓐ 4   Ⓑ 14   Ⓒ 24   Ⓓ 60

FOR MORE PRACTICE:
Standards Practice Book, pp. P81–P82

Divide Using Partial Quotients

Essential Question How can you use partial quotients to divide by 1-digit divisors?

🔑 UNLOCK the Problem · REAL WORLD

At camp, there are 5 players on each lacrosse team. If there are 125 people on lacrosse teams, how many teams are there?

- Underline what you are asked to find.
- Circle what you need to use.
- What operation can you use to find the number of teams?

_____

🔓 One Way Use partial quotients.

In the **partial quotient** method of dividing, multiples of the divisor are subtracted from the dividend and then the partial quotients are added together.

Divide. $125 \div 5$ **Write.** $5\overline{)125}$

STEP 1

Start by subtracting a greater multiple, such as 10 times the divisor. For example, you know that you can make at least 10 teams of 5 players.

Continue subtracting until the remaining number is less than the multiple, 50.

STEP 2

Subtract smaller multiples, such as 5, 2, or 1 times the divisor until the remaining number is less than the divisor. In other words, keep going until you no longer have enough players to make a team.

Then add the partial quotients to find the quotient.

So, there are _____ lacrosse teams.

Partial Quotients

$$5\overline{)125} \quad \downarrow$$

$$-\ \boxed{} \quad 10 \times \underline{\quad} \quad 10$$

$$\boxed{}$$

$$-\ \boxed{} \quad 10 \times \underline{\quad} \quad 10$$

$$\boxed{}$$

$$-\ \boxed{} \quad 5 \times \underline{\quad} \quad +5$$

$$\boxed{}$$

Math Talk **Explain** how you found the total number of teams after finding the partial quotients.

🔓 **Another Way** Use rectangular models to record the partial quotients.

Jarod and Mi also found the number of teams using partial quotients. They recorded the partial quotients using rectangular models. They each still had 25 as the quotient.

Jarod

5	125

10	
5	50	75

$$\begin{array}{r} 125 \\ - \boxed{} \\ \hline 75 \end{array}$$

10	10	
5	50	50	25

$$\begin{array}{r} 75 \\ - \boxed{} \\ \hline 25 \end{array}$$

10	10	5
5	50	50	25

$$\begin{array}{r} 25 \\ - \boxed{} \\ \hline 0 \end{array}$$

10 + 10 + 5 = _____

Mi

5	125

20	
5	100	25

$$\begin{array}{r} 125 \\ - \boxed{} \\ \hline 25 \end{array}$$

20	5
5	100	25

$$\begin{array}{r} 25 \\ - \boxed{} \\ \hline 0 \end{array}$$

20 + 5 = _____

Math Talk MATHEMATICAL PRACTICES
Explain why you might prefer to use one method rather than the other.

Share and Show 📝 . . . .

1. Lacrosse is played on a field 330 ft long. How many yards long is a lacrosse field? (3 feet = 1 yard)

   Divide. Use partial quotients.

$$3\overline{)330}$$
$$-\boxed{} \quad 100 \times \boxed{} \quad 100$$
$$\boxed{}$$
$$-\boxed{} \quad 10 \times \boxed{} \quad +10$$
$$\boxed{}$$

So, the lacrosse field is _____ yards long.

Name _____

Divide. Use partial quotients.

Divide. Use rectangular models to record the partial quotients.

✅ **2.** $3\overline{)225}$

✅ **3.** $428 \div 4 =$ _____

Math Talk **Explain** how you could solve Problems 2 and 3 a different way.

On Your Own ....

Divide. Use partial quotients.

4. $9\overline{)198}$

5. $7\overline{)259}$

6. $8\overline{)864}$

7. $6\overline{)738}$

Divide. Use rectangular models to record the partial quotients.

8. $328 \div 2 =$ _____

9. $475 \div 5 =$ _____

10. $219 \div 3 =$ _____

11. $488 \div 4 =$ _____

Practice: Copy and Solve Divide. Use either way to record the partial quotients.

12. $875 \div 5$

13. $372 \div 2$

14. $252 \div 6$

15. $429 \div 3$

16. $568 \div 8$

17. $504 \div 7$

18. $624 \div 4$

19. $819 \div 9$

Problem Solving REAL WORLD

Use the table for 20–22.

20. Rob wants to put 8 baseball cards on each page in an album. How many pages will he fill?

_____

21. Rob filled 9 plastic boxes with basketball cards with the same number of cards in each box. How many cards did he put in each box?

_____

22. **H.O.T.** Rob filled 3 fewer plastic boxes with football cards than basketball cards. How many boxes did he fill? How many football cards were in each box?

_____

23. A professional game of lacrosse has 60 minutes of playing time. It is split into 4 equal periods of time. How many minutes are in each period?

_____

24. **H.O.T.** **Write Math** What is the least number you can divide by 5 to get a three-digit quotient? Explain how you found your answer.

_____

_____

_____

_____

25. **Test Prep** There are 126 students who signed up to learn how to play lacrosse. If there are 6 students in each group, how many groups are there?

Ⓐ 12   Ⓒ 21

Ⓑ 20   Ⓓ 120
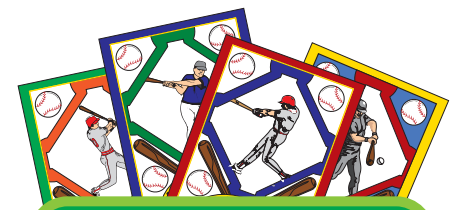
| Rob's Sports Cards Collection ||
Sport	Number of Cards
Baseball	248
Basketball	189
Football	96
Hockey	64

SHOW YOUR WORK

FOR MORE PRACTICE:
Standards Practice Book, pp. P83–P84

Model Division with Regrouping

Essential Question How can you use base-ten blocks to model division with regrouping?

Investigate

Materials ■ base-ten blocks

The librarian wants to share 54 books equally among 3 classes. How many books will she give to each class?

A. Draw 3 circles to represent the classes. Then use base-ten blocks to model 54. Show 54 as 5 tens and 4 ones.

B. Share the tens equally among the 3 groups.

C. If there are any tens left, regroup them as ones. Share the ones equally among the 3 groups.

D. There are _____ ten(s) and _____ one(s) in each group.

So, the librarian will give _____ books to each class.
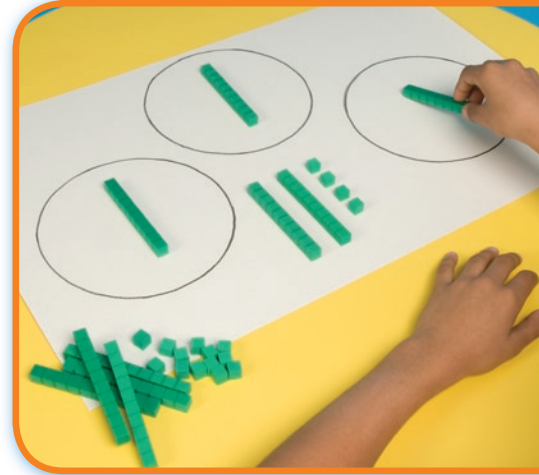
Draw Conclusions . . . .

1. **H.O.T.** **Explain** why you needed to regroup in Step C.

   _____

   _____

2. **Apply** How you can use base-ten blocks to find the quotient of $92 \div 4$?

   _____

   _____

   _____

   _____

Make Connections ....

Use the quick picture at the bottom of the page to help you divide.
Record each step.

Find 76 ÷ 3.

STEP 1
Model 76 as 7 tens 6 ones.
Draw three circles to represent equal groups.
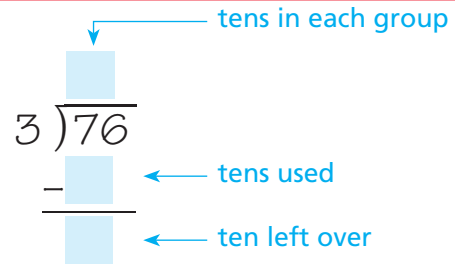
$$3\overline{)76}$$

STEP 2
Share the 7 tens equally among the 3 groups.
Cross out the tens you use.

There are _____ tens in each group.

_____ tens were used. There is _____ ten left over.

tens in each group

$$3\overline{)76}$$

← tens used

← ten left over

STEP 3
One ten cannot be shared among 3 groups
without regrouping.
Regroup 1 ten by drawing 10 ones.

There are now _____ ones to share.

$$3\overline{)76} \\ -6$$
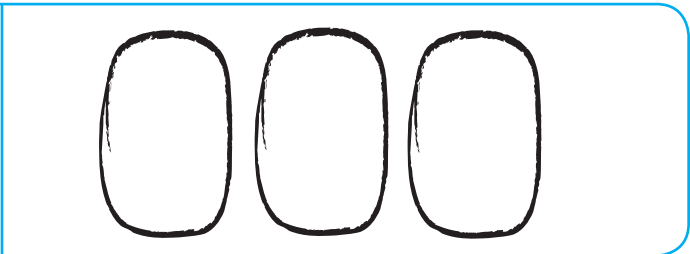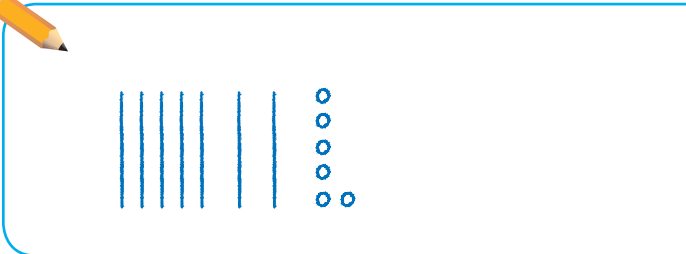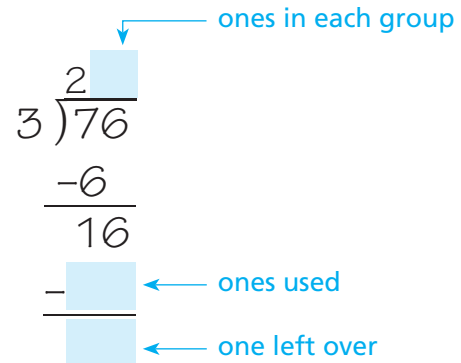2

← ones to share

STEP 4
Share the ones equally among the 3 groups.
Cross out the ones you use.

There are _____ ones in each group.

_____ ones were used. There is _____ one left over.

ones in each group

$$3\overline{)76} \\ -6 \\ \overline{16}$$
2

← ones used

← one left over

There are 3 groups of _____ and _____ left over.

So, for 76 ÷ 3, the quotient is _____ and the remainder is _____.

This can be written as _____.

Math Talk Why do you share tens equally among groups before sharing ones?

Name _____

Share and Show [MATH BOARD] ....

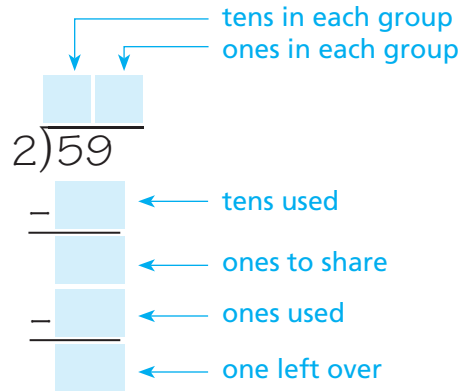**Divide. Use base-ten blocks.**

1. $48 \div 3$ _____

2. $84 \div 4$ _____

✅ **3.** $72 \div 5$ _____

Divide. Draw quick pictures. Record the steps.

4. $59 \div 2$ _____

$2\overline{)59}$

— tens in each group
— ones in each group

— tens used

— ones to share

— ones used

— one left over

✅ **5.** $84 \div 3$ _____

$3\overline{)84}$

— tens in each group
— ones in each group

— tens used

— ones to share

— ones used

— ones left over
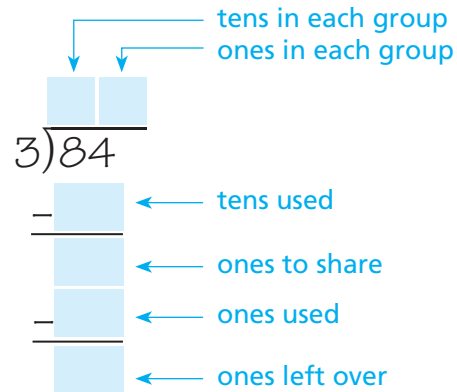
6. [Write Math] ▶ **Explain** why you did not need to regroup in Exercise 2.

_____

_____

Problem Solving REAL WORLD

Sense or Nonsense?

7. Angela and Zach drew quick pictures to find 68 ÷ 4. Whose quick picture makes sense? Whose quick picture is nonsense? **Explain** your reasoning.

I drew 1 ten and 2 ones in each group.

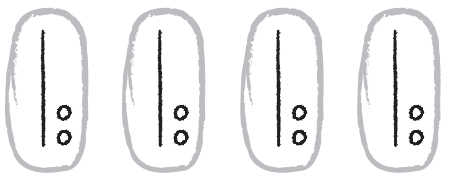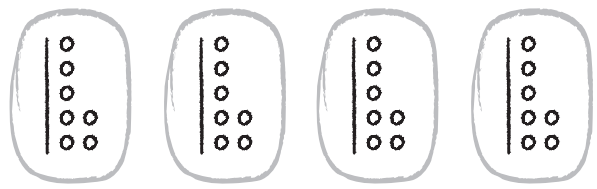I drew 1 ten and 7 ones in each group.

Angela's Quick Picture

Zach's Quick Picture

_____

_____

_____

_____

_____

_____

8. Analyze What did Angela forget to do after she shared the tens equally among the 4 groups?

_____

_____

Place the First Digit

Essential Question How can you use place value to know where to place the first digit in the quotient?

🔑 UNLOCK the Problem › REAL WORLD

Jaime took 144 photos on a digital camera.
The photos are to be placed equally in 6 photo albums.
How many photos will be in each album?

- Underline what you are asked to find.
- Circle what you need to use.

🔑 Example 1 Divide. 144 ÷ 6

144

STEP 1 Use place value to place the first digit.
Look at the hundreds in 144.
1 hundred cannot be shared among 6 groups without regrouping.
Regroup 1 hundred as 10 tens.

Now there are _____ tens to share among 6 groups.

The first digit of the quotient will be in the _____ place.
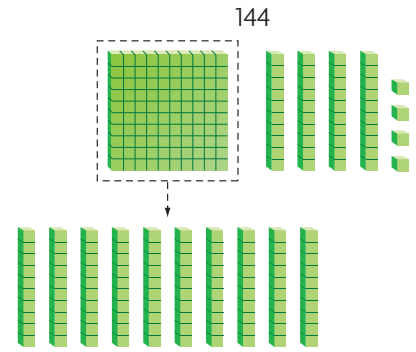
STEP 2 Divide the tens.

$$6 \overline{)144}$$
$$\underline{2}$$

Divide. 14 tens ÷ 6

Multiply. 6 × 2 tens

Subtract. 14 tens − 12 tens
Check. 2 tens cannot be shared among 6 groups without regrouping.

STEP 3 Divide the ones.
Regroup 2 tens as 20 ones.

Now there are _____ ones to share among 6 groups.

$$6 \overline{)144}$$
$$\underline{-12} \downarrow$$
$$24$$

Divide. _____ ones ÷ _____

Multiply. _____ × _____ ones

Subtract. _____ ones − _____ ones
Check. 0 ones cannot be shared among 6 groups.

Math Idea
After you divide each place, the remainder should be less than the divisor.

Math Talk   MATHEMATICAL PRACTICES

Explain how the answer would change if Jaime had 146 photos.

So, there will be _____ photos in each album.

🔑 Example 2 Divide. 287 ÷ 2

Reggie has 287 photographs of animals. If he wants to put the photos into 2 groups of the same size, how many photos will be in each group?
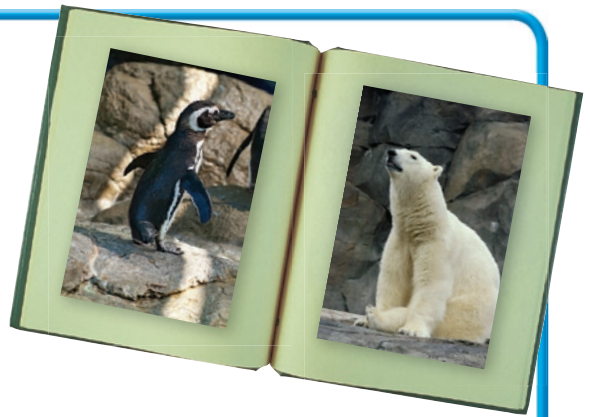
STEP 1

Use place value to place the first digit.
Look at the hundreds in 287.
2 hundreds can be shared between 2 groups.

So, the first digit of the quotient will be in the _____ place.

STEP 2

Divide the hundreds.

$$\begin{array}{r} 1 \\ 2\overline{)287} \\ -\boxed{} \\ \hline \boxed{} \end{array}$$

Divide. 2 hundreds ÷ 2

Multiply. 2 × 1 hundred

Subtract. 2 hundreds − 2 hundreds.

0 hundreds are left.

STEP 3

Divide the tens.

$$\begin{array}{r} 14 \\ 2\overline{)287} \\ -2\downarrow \\ \hline 0\,\boxed{} \\ -\boxed{} \\ \hline \boxed{} \end{array}$$

Divide. _____ tens ÷ _____

Multiply. _____ × _____ tens

Subtract. _____ tens − _____ tens 0 tens are left.

STEP 4

Divide the ones.

$$\begin{array}{r} 143\,r1 \\ 2\overline{)287} \\ -2 \\ 08 \\ -8\downarrow \\ \hline 07 \\ -\boxed{} \\ \hline \boxed{} \end{array}$$

Divide. _____ ones ÷ _____

Multiply. _____ × _____ ones

Subtract. _____ ones − _____ ones 1 one cannot be equally shared between 2 groups.

So, there will be _____ photos in each group with 1 photo left.

Name _____

Share and Show MATH BOARD ....

1. There are 452 pictures of dogs in 4 equal groups. How many pictures are in each group? **Explain** how you can use place value to place the first digit in the quotient.

_____

_____

$4\overline{)452}$

Divide.

☑ **2.** $4\overline{)166}$

☑ **3.** $5\overline{)775}$

MATHEMATICAL PRACTICES

Math Talk **Explain** how you placed the first digit of the quotient in Exercise 2.

On Your Own ....

Divide.

4. $4\overline{)284}$

5. $5\overline{)394}$

6. $3\overline{)465}$

7. $8\overline{)272}$

8. $2\overline{)988}$

9. $3\overline{)504}$

10. $6\overline{)734}$

11. $4\overline{)399}$

Practice: Copy and Solve **Divide.**

12. $516 \div 2$

13. $516 \div 3$

14. $516 \div 4$

15. $516 \div 5$

16. H.O.T. Look back at your answers to Exercises 12–15. What happens to the quotient when the divisor increases? **Explain**.

_____

_____

UNLOCK the Problem · REAL WORLD

17. Nan wants to put 234 pictures in an album with a blue cover. How many full pages will she have in her album?

a. What do you need to find?

_____

b. How will you use division to find the number of full pages?

_____

_____

_____

Photo Albums

Color of cover	Pictures per page
Blue	4
Green	6
Red	8

c. Show the steps you will use to solve the problem.

d. Complete the following sentences.

Nan has _____ pictures.

She wants to put the pictures in an album

with pages that each hold _____ pictures.

She will have an album with _____ full

pages and _____ pictures on another page.

---

18. Juan wants to put his 672 pictures in an album with a green cover. How many full pages will he have in his album?

_____

19. Test Prep Kat wants to put her 485 pictures in an album with a red cover. She uses division to find out how many full pages she will have. In which place is the first digit of the quotient?

(A) thousands

(B) hundreds

(C) tens

(D) ones

Name _____

Divide by 1-Digit Numbers

Essential Question How can you divide multidigit numbers and check your answers?

🔑 UNLOCK the Problem REAL WORLD

Students in the third, fourth, and fifth grades made 525 origami animals to display in the library. Each grade made the same number of animals. How many animals did each grade make?

🔑 **Example 1** Divide. 525 ÷ 3

STEP 1 Use place value to place the first digit.
Look at the hundreds in 525.
5 hundreds can be shared among
3 groups without regrouping.
The first digit of the quotient will be in the _____ place.

STEP 2 Divide the hundreds.

$$\begin{array}{r} 1 \\ 3\overline{)525} \\ - \\ \hline \end{array}$$

Divide. Share _____ hundreds equally among _____ groups.

Multiply. _____ × _____

Subtract. _____ − _____.

Check. _____ hundreds cannot be shared among 3 groups without regrouping.

> **Math Talk** MATHEMATICAL PRACTICES
> At the checking step, what would you do if the number is greater than the divisor?

STEP 3 Divide the tens.

$$\begin{array}{r} 17 \\ 3\overline{)525} \\ -3\downarrow \\ \hline 22 \\ - \\ \hline \end{array}$$

Divide. Share _____ equally among _____ groups.

Multiply. _____

Subtract. _____ − _____

Check. _____

_____

_____.

STEP 4 Divide the ones.

$$\begin{array}{r} 175 \\ 3\overline{)525} \\ -3\downarrow \\ \hline 22 \\ -21\downarrow \\ \hline 15 \\ - \\ \hline \end{array}$$

Divide. Share _____ equally among _____ groups.

Multiply. _____

Subtract. _____ − _____

Check. _____ are left.

So, each class made _____ origami animals.

There are 8,523 sheets of origami paper to be divided equally among 8 schools. How many sheets of origami paper will each school get?

🔑 **Example 2** Divide. 8,523 ÷ 8

STEP 1 Use place value to place the first digit.

Look at the thousands in 8,523.
8 thousands can be shared among
8 groups without regrouping.

The first digit of the quotient will be

in the _____ place.

STEP 2 Divide the thousands.

STEP 3 Divide the hundreds.

STEP 4 Divide the tens.

STEP 5 Divide the ones.

So, each school will get _____ sheets of origami paper.

There will be _____ sheets left.

$$8)\overline{8,5\ 2\ 3}$$

⚠️ **ERROR Alert**

Place a zero in the quotient when a place in the dividend cannot be divided by the divisor.

CONNECT Division and multiplication are inverse operations. You can use multiplication to check your answer to a division problem.

Multiply the quotient by the divisor. If there is a remainder, add it to the product. The result should equal the dividend.

Divide.

quotient →   1,065 r3 ← remainder
divisor → 8)8,523 ← dividend

Check.

$$\begin{array}{r} 1,065 \leftarrow \text{quotient} \\ \times\quad 8 \leftarrow \text{divisor} \\ \hline 8,520 \\ +\quad 3 \leftarrow \text{remainder} \\ \hline 8,523 \leftarrow \text{dividend} \end{array}$$

The check shows that the division is correct.

Name _____

Share and Show MATH BOARD . . . .

1. Ollie used 852 beads to make 4 bracelets. He put the
same number of beads on each bracelet. How many
beads does each bracelet have? Check your answer.

Divide.

Check.

$$4 \overline{)\ 8\ 5\ 2}$$

quotient begins with 2

So, each bracelet has _____ beads.

Divide and check.

2. $2 \overline{)\ 394}$

✓ **3.** $2 \overline{)\ 803}$

✓ **4.** $4 \overline{)\ 3,448}$

On Your Own . . . .

Divide and check.

5. $2 \overline{)\ 816}$

6. $4 \overline{)\ 709}$

7. $3 \overline{)\ 267}$

8. $6 \overline{)\ 1,302}$

9. $8 \overline{)\ 9,232}$

10. $9 \overline{)\ 1,020}$

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H.O.T. **Algebra** Find the unknown number.

11. $n \div 3 = 315$ **12.** $n \div 4 = 1{,}225$ **13.** $185 = n \div 5$

$n =$ _____ $n =$ _____ $n =$ _____

Problem Solving REAL WORLD

Use the table for 14–16.

14. Four teachers bought 10 origami books and 100 packs of origami paper for their classrooms. They will share the cost of the items equally. How much should each teacher pay?

_____

The Craft Store	
Item	**Price**
Origami Book	$24 each
Origami Paper	$6 per pack
Origami Kit	$8 each

15. **H.O.T.** **Write Math** Six students shared equally the cost of 18 of one of the items in the chart. Each student paid $24. What item did they buy? **Explain** how you found your answer.

···· SHOW YOUR WORK ····

_____

_____

_____

_____

16. Ms. Alvarez has $1,482 to spend on origami paper. How many packs can she buy?

_____

17. Evan made origami cranes with red, blue, and yellow paper. The number of cranes in each color is the same. If there are 342 cranes, how many of them are blue or yellow?
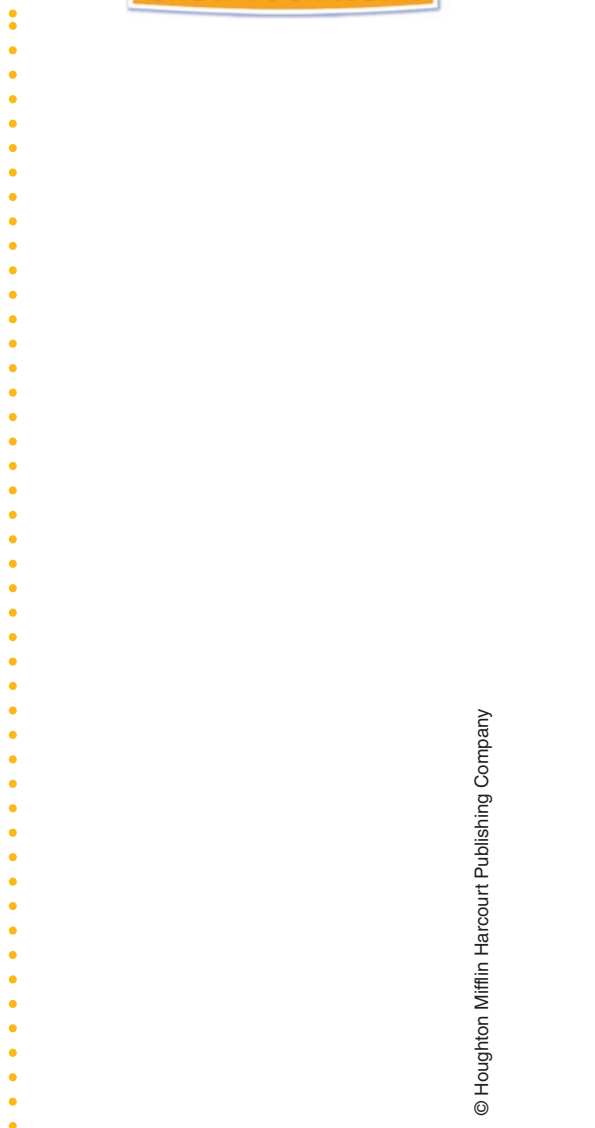
_____

18. **Test Prep** An artist made 515 origami animals in 5 days. She made the same number of animals each day. How many origami animals did she make each day?

Ⓐ 13   Ⓒ 510

Ⓑ 103   Ⓓ 2,060

FOR MORE PRACTICE:
Standards Practice Book, pp. P89–P90

Problem Solving • Multistep Division Problems

Essential Question How can you use the strategy *draw a diagram* to solve multistep division problems?

🔑 UNLOCK the Problem — REAL WORLD

Lucia and her dad will prepare corn for a community picnic. There are 3 bags of corn. Each bag holds 32 ears of corn. When the corn is cooked, they want to divide the corn equally among 8 serving plates. How many ears of corn should they put on each of 8 serving plates?

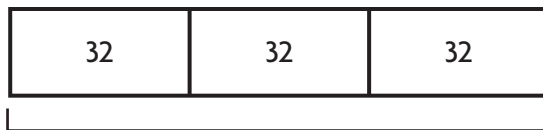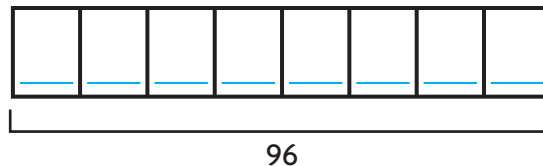| Read the Problem	Solve the Problem
What do I need to find? I need to find the number of _____ that will go on each plate.	I can draw bar models to visualize the information given and then decide how to find how many ears of corn should go on a plate.
What information do I need to use? _____ bags with _____ ears in each bag. The total ears are divided equally into _____ groups.	First, I will model and multiply to find the total number of ears of corn. | 32 | 32 | 32 | Then I will model and divide to find how many ears of corn should go on each plate.
How will I use the information? I will make a bar model for each step to visualize the information. Then I will _____ to find the total and _____ to find the number for each plate.	| | | | | | | | | 96

1. How many ears of corn should go on each plate? _____

2. How can you check your answer? _____

_____

🔑 Try Another Problem

There are 8 dinner rolls in a package. How many packages will be needed to feed 64 people if each person has 2 dinner rolls?

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

3. How many packages of rolls will be needed? _____

4. How did drawing a bar model help you solve the problem?

_____

_____

_____

Math Talk   **Describe** another method you could have used to solve the problem.

Name _____

Share and Show MATH BOARD ....

1. A firehouse pantry has 52 cans of vegetables and 74 cans of soup. Each shelf holds 9 cans. What is the least number of shelves needed for all the cans?

   First, draw a bar model for the total number of cans.

   Next, add to find the total number of cans.

   Then, draw a bar model to show the number of shelves needed.

   Finally, divide to find the number of shelves needed.

Math Talk MATHEMATICAL PRACTICES
Explain how you could check that your answer is correct.

SHOW YOUR WORK

So, _____ shelves are needed to hold all of the cans.

2. H.O.T. **What if** 18 cans fit on a shelf? What is the least number of shelves needed? **Describe** how your answer would be different.

   _____

   _____

3. Julio's dad bought 10 dozen potatoes. The potatoes were equally divided into 6 bags. How many potatoes are in each bag?

   _____

4. Ms. Johnson is in charge of decorations for a party. She bought 6 bags of balloons. Each bag has 25 balloons. She fills all the balloons and puts 5 balloons in each bunch. How many bunches can she make?

   _____

On Your Own . . . .

Choose a
STRATEGY

Act It Out
Draw a Diagram
Find a Pattern
Make a Table or List
Solve a Simpler Problem

5. At the garden shop, each small tree costs $125 and each large tree costs $225. How much will 3 small trees and 1 large tree cost?

_____

6. H.O.T. An adult's dinner costs $8. A family of 2 adults and 2 children pays $26 for their dinners. How much does a child's dinner cost? **Explain**.

_____

_____

Use the table for 7–8.

7. **Write Math** ➤ Maria bought 80 ounces of apples. She needs 10 apples to make a pie. How many apples will be left over? **Explain.**

_____

_____

_____

_____

Fruit	Average weight
Peach	6 ounces
Apple	5 ounces
Plum	2 ounces

8. Molly put 4 pieces of fruit in a bag. The bag weighs 19 ounces. How many of each kind of fruit are in the bag?

_____

9. The garden warehouse delivered 1,500 pounds of topsoil in 5-pound bags to the garden shop. The garden shop sold half of the bags the same day they were delivered. How many bags does the garden shop have left to sell?

_____

10. **Test Prep** Ben collected 43 cans and some bottles. He received 5¢ for each can or bottle. If Ben received a total of $4.95, how many bottles did he collect?

(A) 56   (B) 99   (C) 560   (D) 990

FOR MORE PRACTICE:
Standards Practice Book, pp. P91–P92

✓ Chapter Review/Test

▶ Vocabulary

Choose the best term from the box.

1. When a number cannot be divided evenly, the amount

   left over is called the _____. **(p. 142)**

2. You use the _____ method of dividing when
   multiples of the divisor are subtracted from the dividend and
   then the quotients are added together. **(p. 167)**

▶ Concepts and Skills

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

3. $96 \div 6 =$ _____

4. $86 \div 2 =$ _____

5. $155 \div 5 =$ _____

**Find two numbers the quotient is between.
Then estimate the quotient.**

6. $787 \div 2$

7. $391 \div 6$

8. $789 \div 8$

_____   _____   _____

_____   _____   _____

Divide.

9. $3\overline{)987}$

10. $7\overline{)501}$

11. $5\overline{)153}$

12. $4\overline{)808}$

13. $6\overline{)8,348}$

14. $8\overline{)4,897}$

GO Online Assessment Options
Chapter Test

Fill in the bubble completely to show your answer.

15. There are 96 tourists who have signed up to tour the island. The tourists are assigned to 6 equal-size groups. How many tourists are in each group?

(A) 1 r3

(B) 1 r6

(C) 11

(D) 16

16. Maria needs to share the base-ten blocks equally among 4 equal groups.
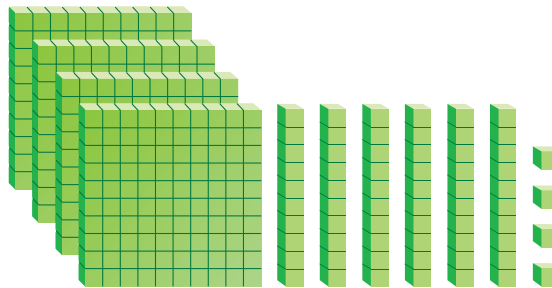
Which model shows how many are in each equal group?

(A)

(C)

(B)

(D)

17. Manny has 39 rocks. He wants to put the same number of rocks in each of 7 boxes. Which sentence shows how many rocks will be in each box?

(A) He will need 6 boxes.

(B) There will be 6 rocks in each box.

(C) There will be 5 rocks in each box.

(D) There will be 5 rocks left over.

**Fill in the bubble completely to show your answer.**

18. There are 176 students in the marching band. They are arranged in equal rows of 8 students for a parade. How many rows of students are there?

    Ⓐ 220 rows

    Ⓑ 120 rows

    Ⓒ 22 rows

    Ⓓ 21 rows

19. Naomi wants to plant 387 tulip bulbs in 9 equal rows. She uses division to find the number of tulips in each row. In which place is the first digit of the quotient?

    Ⓐ ones

    Ⓑ tens

    Ⓒ hundreds

    Ⓓ thousands

20. Kevin and 2 friends are playing a game of cards. There are 52 cards in the deck to be shared equally. Kevin wants each player to receive the same number of cards. How many cards will each player receive? How many cards will be left over?

    Ⓐ 16 cards and 4 cards left over

    Ⓑ 17 cards and 1 card left over

    Ⓒ 25 cards and 2 cards left over

    Ⓓ 26 cards and no cards left over

21. Which number is the quotient?

    $1,125 \div 5 = \blacksquare$

    Ⓐ 25

    Ⓑ 105

    Ⓒ 125

    Ⓓ 225

▶ Constructed Response

22. Mrs. Valdez bought 6 boxes of roses. Each box had 24 roses. She divided all the roses into 9 equal bunches. How many roses were in each bunch? **Explain** how to use a diagram to help solve the problem. Show your diagrams.

_____

_____

▶ Performance Task

23. Mr. Owens plans to rent tables for a spaghetti fundraiser. He needs to seat 184 people.

square table
4 chairs

rectangular table
6 chairs

circular table
8 chairs
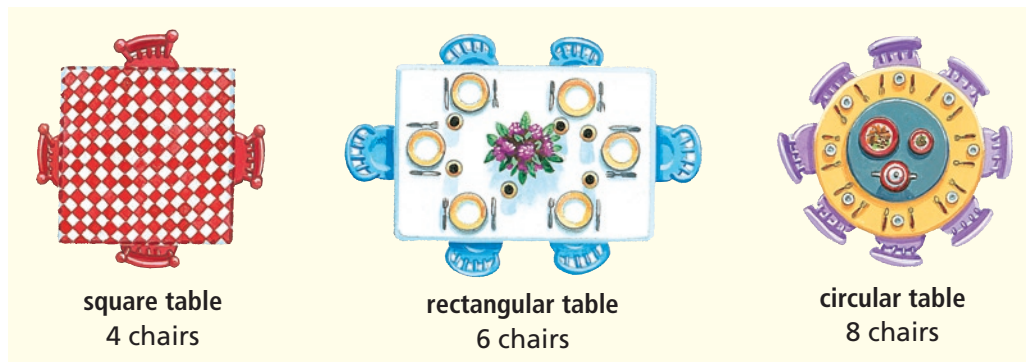
A If Mr. Owens wants all rectangular tables, how many tables should he rent? **Explain.**

_____

_____

B Square tables rent for $12 each. Circular tables rent for $23 each. Mr. Owens says it would cost him less to rent square tables instead of circular tables. Is he right? **Explain.**

_____

_____

_____