Name _____

Remainders

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

Common Core **Number and Operations in Base Ten—4.NBT.B.6**

MATHEMATICAL PRACTICES

MP4, MP5

Investigate

Hands On

Materials ■ counters

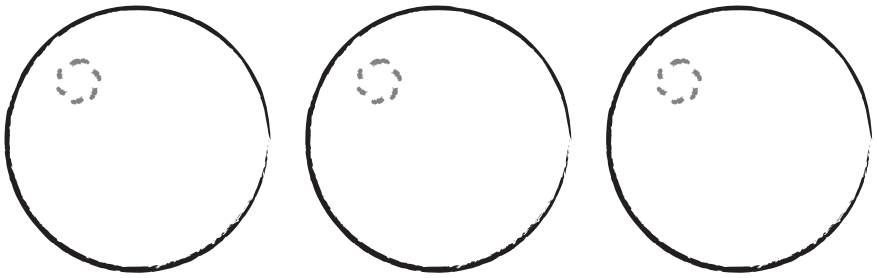
Andrea and 2 friends are playing a game of dominoes. There are 28 dominoes in the set. Andrea wants each player to receive the same number of dominoes. Can she divide them equally among the 3 players? Why or why not?

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. THINK SMARTER Explain how the model helped you find the number of dominoes each player receives. Why is 1 counter left outside the equal groups?

3. 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

Hands On

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.

Math Talk

MATHEMATICAL PRACTICES 8

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

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

Name _____

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. $29 \div 4$

6. $34 \div 5$

7. $25 \div 3$

8. $7\overline{)20}$

Divide. Draw a quick picture to help.

9. $4\overline{)35}$

10. $23 \div 8$

Problem Solving • Applications Real World

11. MATHEMATICAL PRACTICE 6 **Explain** how you use a quick picture to find the quotient and remainder.

12. GO DEEPER 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. THINK SMARTER 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

What's the Error?

14. THINK SMARTER 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 _____

Remainders

Common Core

COMMON CORE STANDARD—4.NBT.B.6
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Use counters to find the quotient and remainder.

1. $13 \div 4$

3 r1

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. $26 \div 4$

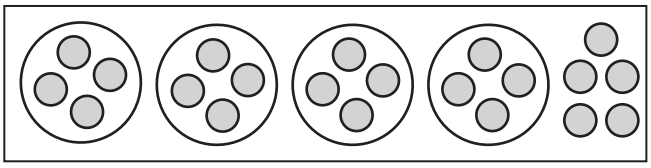
Divide. Draw a quick picture to help.

9. $14 \div 3$

10. $5\overline{)29}$

Problem Solving Real World

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

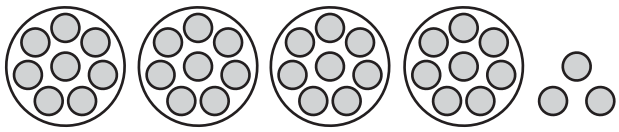


12. WRITE Math Describe a real-life situation where you would have a remainder.

Lesson Check (4.NBT.B.6)

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

2. What is the remainder in the division problem modeled below?



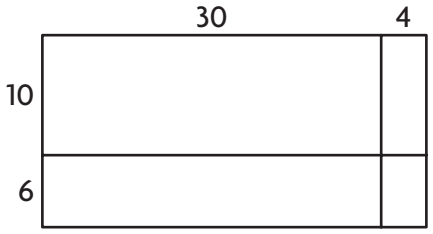
Spiral Review (4.OA.A.3, 4.NBT.A.2, 4.NBT.B.5)

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

4. In 2010, the population of Alaska was about 710,200. What is this number written in word form?

5. 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?

6. What partial products are shown by the model below?



FOR MORE PRACTICE GO TO THE Personal Math Trainer