

Name _____

Remainders

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



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

MATHEMATICAL PRACTICES

MP4, MP5



Investigate

Materials ■ counters

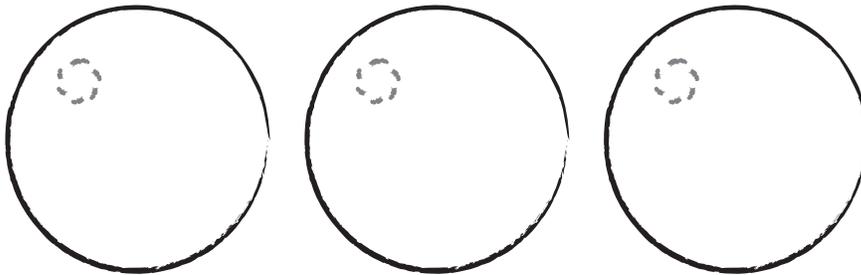
Andrea and 2 friends are playing a game of dominoes. There are 28 dominoes in the set. Andrea wants each player to receive the same number of dominoes. Can she divide them equally among the 3 players? Why or why not?

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

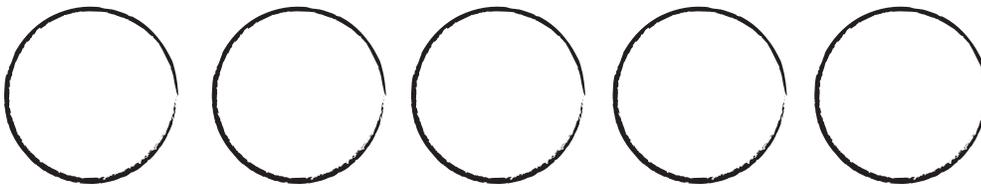


When a number cannot be divided evenly, the amount left over is called the **remainder**.

Use counters to find $39 \div 5$.

- 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

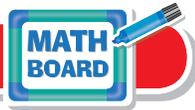
MATHEMATICAL PRACTICES 8

For $39 \div 5$, the quotient is _____ and the remainder is _____, or 7 r4.

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

Name _____

Share and Show



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



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?

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 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.

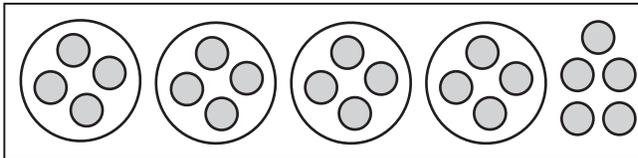
9. $14 \div 3$

10. $5 \overline{)29}$

Problem Solving



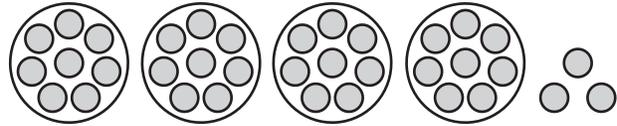
11. Mark drew the following model and said it represented the problem $21 \div 4$. Is Mark's model correct? If so, what is the quotient and remainder? If not, what is the correct quotient and remainder?



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 $32 \div 6$?
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?

