

Name _____

Estimate Products

Essential Question What strategies can you use to estimate products?



Number and Operations in Base Ten—4.NBT.B.5 Also 4.NBT.A.3

MATHEMATICAL PRACTICES
MP1, MP2, MP5, MP7

Unlock the Problem

The Smith family opens the door of their refrigerator 32 times in one day. There are 31 days in May. About how many times is it opened in May?

- Underline any information you will need.



 **One Way** Use rounding and mental math.

Estimate. 32×31

STEP 1 Round each factor.

$$32 \times 31$$



$$30 \times 30$$

STEP 2 Use mental math.

$$3 \times 3 = 9 \leftarrow \text{basic fact}$$

$$30 \times 30 = \underline{\hspace{2cm}}$$

Math Talk

MATHEMATICAL PRACTICES 6

Compare Will the actual number of times the refrigerator is opened in a year be greater than or less than 900? Explain.

So, the Smith family opens the refrigerator door about 900 times during the month of May.

1. On average, a refrigerator door is opened 38 times each day. About how many fewer times in May is the Smith family's refrigerator door opened than the average refrigerator door?

 **Show your work.**

All 24 light bulbs in the Park family's home are CFL light bulbs. Each CFL light bulb uses 28 watts to produce light. About how many watts will the light bulbs use when turned on all at the same time?

🔑 Another Way Use mental math and compatible numbers.

Compatible numbers are numbers that are easy to compute mentally.

Estimate. 24×28

STEP 1 Use compatible numbers.

$$24 \times 28$$



$$25 \times 30 \quad \text{Think: } 25 \times 3 = 75$$

So, about 750 watts are used.

STEP 2 Use mental math.

$$25 \times 3 = 75$$

$$25 \times 30 = \underline{\hspace{2cm}}$$



Try This! Estimate $26 \times \$79$.

A Round to the nearest ten

$$26 \times \$79$$



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

$26 \times \$79$ is about $\underline{\hspace{2cm}}$.

B Compatible numbers

$$26 \times \$79$$



$$25 \times \$80 = \underline{\hspace{2cm}}$$

$26 \times \$79$ is about $\underline{\hspace{2cm}}$.

Think: How can you use $25 \times 4 = 100$ to help find 25×8 ?

2. Explain why \$2,400 and \$2,000 are both reasonable estimates.

3. In what situation might you choose to find an estimate rather than an exact answer?

Share and Show



1. To estimate the product of 62 and 28 by rounding, how would you round the factors? What would the estimated product be?

Name _____

Estimate the product. Choose a method.

2. 96×34

 3. $47 \times \$39$

 4. 78×72

**Math
Talk**

MATHEMATICAL PRACTICES 1

Describe how you know if an estimated product will be greater than or less than the exact answer.

On Your Own

Estimate the product. Choose a method.

5. 41×78

6. 51×73

7. 34×80

Practice: Copy and Solve Estimate the product. Choose a method.

8. 61×31

9. 52×68

10. 26×44

11. $57 \times \$69$

THINK SMARTER

Find two possible factors for the estimated product.

12. 2,800

13. 8,100

14. 5,600

15. 2,400

16. **GO DEEPER** Mr. Parker jogs for 35 minutes each day. He jogs 5 days in week 1, 6 days in week 2, and 7 days in week 3. About how many minutes does he jog?

17. **GO DEEPER** There are 48 beads in a package. Candice bought 4 packages of blue, 9 packages of gold, 6 packages of red, and 2 packages of silver beads. About how many beads did Candice buy?

Problem Solving • Applications



18. **GO DEEPER** On average, a refrigerator door is opened 38 times each day. Len has two refrigerators in his house. Based on this average, about how many times in a 3-week period are the refrigerator doors opened?

19. The cost to run a refrigerator is about \$57 each year. About how much will it have cost to run by the time it is 15 years old?

20. **THINK SMARTER** If Mel opens his refrigerator door 36 times every day, about how many times will it be opened in April? Will the exact answer be more than or less than the estimate? Explain.

21. **MATHEMATICAL PRACTICE 2** **Represent a Problem** What question could you write for this answer? The estimated product of two numbers, that are not multiples of ten, is 2,800.

WRITE *Math* • Show Your Work • • • • •



22. **THINK SMARTER** Which is a reasonable estimate for the product? Write the estimate. An estimate may be used more than once.

$$30 \times 20$$

$$25 \times 50$$

$$20 \times 20$$

$$26 \times 48 \quad \boxed{}$$

$$28 \times 21 \quad \boxed{}$$

$$21 \times 22 \quad \boxed{}$$

$$51 \times 26 \quad \boxed{}$$

Name _____

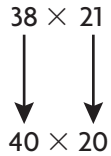
Estimate Products



COMMON CORE STANDARD—4.NBT.B.5
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate the product. Choose a method.

1. 38×21



800

2. 63×19

3. $27 \times \$42$

4. 73×67

5. $37 \times \$44$

6. 45×22

Problem Solving



7. A dime has a diameter of about 18 millimeters. About how many millimeters long would a row of 34 dimes be?

8. A half-dollar has a diameter of about 31 millimeters. About how many millimeters long would a row of 56 half-dollars be?

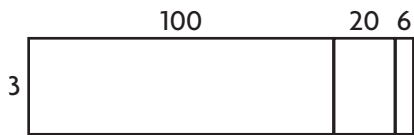
9. **WRITE** *Math* Describe a real-life multiplication situation for which an estimate makes sense. Explain why it makes sense.

Lesson Check (4.NBT.B.5)

1. What is a reasonable estimate for the product of 43×68 ?
2. Marissa burns 93 calories each time she plays fetch with her dog. She plays fetch with her dog once a day. About how many calories will Marissa burn playing fetch with her dog in 28 days?

Lesson Check (4.NBT.A.1, 4.NBT.A.3, 4.NBT.B.5)

3. Use the model to find 3×126 .



4. A store sold a certain brand of jeans for \$38. One day, the store sold 6 pairs of jeans of that brand. How much did the 6 pairs of jeans cost?

5. The Gateway Arch in St. Louis, Missouri, weighs about 20,000 tons. Write an amount that could be the exact number of tons the Arch weighs.
6. What is another name for 23 ten thousands?
