Visual Learning | A-Z Glossary

Essential Question

What Are Some Ways to Estimate Products of Decimals and Whole Numbers?

Visual Learning Bridge

A

A wedding planner needs to buy 16 pounds of sliced cheddar cheese. About how much will the cheese cost?

B One Way

Round each number to the nearest dollar and nearest ten.

$$\$2.15 \times 16$$
$$\downarrow \quad \downarrow$$
$$\$2 \times 20$$

$\$2 \times 20 = \$40$

The cheese will cost about $40.

C Another Way

Use compatible numbers that you can multiply mentally.

$$\$2.15 \times 16$$
$$\downarrow \quad \downarrow$$
$$\$2 \times 15$$

$\$2 \times 15 = \$30$

The cheese will cost about $30.

Convince Me! **Reasoning** About how much money would 18 pounds of cheese cost if the price is $3.95 per pound? Use two different ways to estimate the product. Are your estimates overestimates or underestimates? Explain.

Name _____

Practice Tools Assessment

Another Example

Manuel walks a total of 0.75 mile to and from school each day. If there have been 105 school days so far this year, about how many miles has he walked in all?

Round to the nearest whole number.

105×0.75

$105 \times 1 = 105$

Use compatible numbers.

105×0.75

$100 \times 0.8 = 80$

Both methods provide reasonable estimates of how far Manuel has walked.

Guided Practice

Do You Understand?

1. **Number Sense** There are about 20 school days in a month. In the problem above, about how many miles does Manuel walk each month? Write an equation to show your work.

2. Without multiplying, which estimate in the Another Example do you think is closer to the exact answer? Explain your reasoning.

Do You Know How?

In **3–8**, estimate each product using rounding or compatible numbers.

3. 0.87×112

4. 104×0.33

5. 9.02×80

6. 0.54×24

7. 33.05×200

8. 0.79×51

Independent Practice

In **9–16**, estimate each product.

9. 0.12×105

10. 45.3×4

11. 99.2×82

12. 37×0.93

13. 1.67×4

14. 3.2×184

15. 12×0.37

16. 0.904×75

Problem Solving

17. About how much money does Stan need to buy 5 T-shirts and 10 buttons?

18. Joseph buys a pair of shorts for $17.95 and 4 T-shirts. About how much money does he spend?

19. Marcy picked 18.8 pounds of peaches at the pick-your-own orchard. Each pound costs $1.28. About how much did Marcy pay for the peaches? Write an equation to model your work.

20. **Be Precise** Joshua had $20. He spent $4.58 on Friday, $7.43 on Saturday, and $3.50 on Sunday. How much money does he have left? Show how you found the answer.

21. **Higher Order Thinking** Ms. Webster works 4 days a week at her office and 1 day a week at home. The route to Ms. Webster's office is 23.7 miles. The route home is 21.8 miles. About how many miles does she drive for work each week? Explain how you found your answer.

Assessment Practice

22. Rounding to the nearest tenth, which of the following give an **underestimate**?

- ☐ 39.45×1.7
- ☐ 27.54×0.74
- ☐ 9.91×8.74
- ☐ 78.95×1.26
- ☐ 18.19×2.28

23. Rounding to the nearest whole number, which of the following give an **overestimate**?

- ☐ 11.6×9.5
- ☐ 4.49×8.3
- ☐ 12.9×0.9
- ☐ 0.62×1.5
- ☐ 8.46×7.38