



3

During early California history, some Native American tribes used disc-shaped shells called dentalia as valuable trading shells. The shells were also used to make jewelry, like this necklace. What is the estimated length of one of these necklaces? You will find out in Lesson 6-3.

4

Numismatics is the study and collection of coins, money, and related objects. What is the value of different collections of coins? You will find out in Lesson 6-1.



Review What You Know!

Vocabulary

Choose the best term from the box.

- equivalent fractions
- mixed numbers
- factors
- product

1. In the equation $5 \times 5 = 25$, the number 25 is the ? and the digits 5 and 5 are ?.
2. ? have a whole number and a fraction.
3. Fractions that name the same part of a whole are ?.

Number Theory

Write whether each number is prime or composite.

4. 32 5. 7 6. 45

List all the factors for each number.

7. 10 8. 18 9. 50

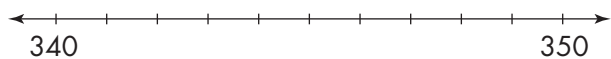
Fractions

Write each quotient as a fraction.

10. $5 \div 18$ 11. $5 \div 6$ 12. $9 \div 12$

Using Number Lines

Writing to Explain Write an answer for the question.



13. How can you use this number line to round 347 to the nearest ten?



NS 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

Multiplying Decimals by 10, 100, or 1,000

What is the rule for multiplying decimals by 10, 100, or 1,000?

A baker buys some of the ingredients he uses in bulk. He needs to purchase 10 lb of pecans and 100 lb of flour. How much will the baker spend for each amount?

Choose an Operation Multiply to join equal groups.

\$0.45 per lb



\$2.89 per lb

Guided Practice*

Do you know HOW?

In **1** through **8**, use mental math to find each product.

- | | |
|-----------------------|------------------------|
| 1. 0.009×10 | 2. 0.45×100 |
| 3. $3.1 \times 1,000$ | 4. 7.4×10 |
| 5. 0.062×100 | 6. $1.24 \times 1,000$ |

Do you UNDERSTAND?

- To find the product of $5.8 \times 1,000$, move the decimal point places to the right and annex zeros.
- How much will the baker spend if he buys 10 lb of flour? 1,000 lb of flour?

Independent Practice

In **9** through **36**, use mental math to find each product.

- | | | | |
|--------------------------|--------------------------|-------------------------|---------------------------|
| 9. 4.23×1 | 10. 4.23×10 | 11. 4.23×100 | 12. $4.23 \times 1,000$ |
| 13. 0.0867×10 | 14. 0.0867×100 | 15. 0.0867×1 | 16. $0.0867 \times 1,000$ |
| 17. 63.7×10 | 18. $56.37 \times 1,000$ | 19. 0.365×100 | 20. $5.02 \times 1,000$ |
| 21. $94.6 \times 1,000$ | 22. 0.9463×100 | 23. 0.678×10 | 24. 681.7×100 |
| 25. 4.3×10 | 26. 0.32×100 | 27. 5.1×100 | 28. $1.02 \times 1,000$ |
| 29. $0.004 \times 1,000$ | 30. 0.001×10 | 31. 6.02×100 | 32. 5.07×10 |
| 33. 0.063×100 | 34. $7.25 \times 1,000$ | 35. 19.212×100 | 36. 0.62×10 |

Use the patterns in this table to find 0.45×100 and 2.89×10 .

| Multiply by | Move the decimal point to the right |
|-------------|-------------------------------------|
| 1 | 0 places |
| 10 | 1 place |
| 100 | 2 places |
| 1,000 | 3 places |

When you need to move the decimal point beyond the number of digits in the number you are multiplying, *annex* 1 or more zeros.

Cost of flour:

$$0.45 \times 100 = 0.45 = 45$$

Cost of pecans:

$$2.89 \times 10 = 2.89 = 28.9$$

The flour will cost \$45.00, and the pecans will cost \$28.90.

If 100 lb or 1,000 lb of pecans needed to be purchased, the pattern can be continued to find the cost.


$$2.89 \times 100 = 2.89 = 289$$

$$2.89 \times 1,000 = 2.890 = 2,890$$

Problem Solving

The table at the right shows the coins saved by Tina and her sister for one year.

37. **Number Sense** Find the total value of each type of coin the girls have saved.
38. **Number Sense** Find the total value for the coins saved by the sisters.
39. The principal of Mountain Middle School has a big glass jar of marbles. The empty jar weighs 40.5 ounces, and each of the 1,000 marbles weighs 1.25 ounces. Find the total weight in ounces of the marbles.
40. **Writing to Explain** Marcia and David each multiplied 5.6×10 and 0.721×100 . Marcia got 0.56 and 7.21 for her products. David got 56 and 72.1 for his products. Which student multiplied correctly? How do you know?
42. **Algebra** In which of the following equations does $n = 1,000$?

| Type of Coin | Number Saved |
|--|--------------|
|  | 1,000 |
|  | 100 |
|  | 1,000 |
|  | 10 |

41. The Parents' Club is trying to decide on favors for International Night. They will need 100 items, and they have a budget of \$250. They can choose from 100 baseball hats at \$2.45 each, 100 sports bottles at \$2.50 each, or 100 flags at \$2.75 each. Which item(s) can they afford to buy?

- A $n \times 0.426 = 42.6$ C $n \times 100 = 630$
 B $7.078 \times n = 7,078$ D $5.9 \times n = 0.59$



NS 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

Multiplying a Whole Number and a Decimal

How do you multiply a whole number by a decimal?

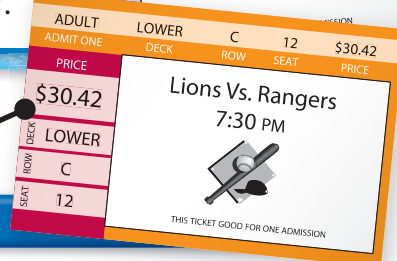
The price of admission to a minor league baseball game increased by 0.17 times the amount of last year's admission. If last year's admission was \$26, how much is the increase?

Choose an Operation Multiply to find 26×0.17 .

last year's price



this year's price



Guided Practice*

Do you know HOW?

Find each product.

$$\begin{array}{r} 1. \quad 9.8 \\ \times \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0.67 \\ \times \quad 8 \\ \hline \end{array}$$

$$3. \quad 0.457 \times 3$$

$$4. \quad 34 \times 5.3$$

$$5. \quad 45 \times 0.003$$

$$6. \quad 34.6 \times 21$$

Do you UNDERSTAND?

- Writing to Explain** What is the difference between multiplying a whole number by a decimal and multiplying two whole numbers?
- Use the information from the example above. How much will admission cost to a minor league game this year?

Independent Practice

Find each product.

$$\begin{array}{r} 9. \quad 34.6 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 56.3 \\ \times \quad 22 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 405 \\ \times 0.47 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 9.32 \\ \times \quad 16 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 12.9 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 27.4 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 336 \\ \times \quad 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 88 \\ \times \quad 1.8 \\ \hline \end{array}$$

$$17. \quad 84 \times 0.005$$

$$18. \quad 34,000 \times 2.65$$

$$19. \quad 64.2 \times 20$$

$$20. \quad 38.6 \times 19$$

$$21. \quad 40 \times 0.22$$

$$22. \quad 57 \times 2.3$$

$$23. \quad 5.8 \times 11$$

$$24. \quad 56 \times 0.4$$

$$25. \quad 0.1 \times 22$$

$$26. \quad 170 \times 0.003$$

$$27. \quad 4.02 \times 9$$

$$28. \quad 514 \times 0.4$$

$$29. \quad 0.3 \times 99$$

$$30. \quad 52 \times 3.6$$

$$31. \quad 105 \times 0.4$$

$$32. \quad 92 \times 0.9$$

Step 1

Multiply as you would with whole numbers.

$$\begin{array}{r}
 \overset{1\ 4}{0.17} \\
 \times 26 \\
 \hline
 102 \\
 340 \\
 \hline
 442
 \end{array}$$

Step 2

Count the decimal places in both factors, and then place the decimal point in the product the same number of places from the right.

$$\begin{array}{r}
 \overset{1\ 4}{0.\underline{1}\underline{7}} \quad 2 \text{ decimal places} \\
 \times 26 \quad 0 \text{ decimal places} \\
 \hline
 102 \\
 340 \\
 \hline
 \underline{4.42} \quad 2 \text{ decimal places}
 \end{array}$$

The increase from last year's admission is \$4.42.

Problem Solving

For **33**, refer to the prices at the right.

- 33.** Mia is shopping and finds a sale. She has \$25 in her wallet and a coupon worth \$4 off the cost of a dress.
- How much money will the dress cost if she uses the coupon?
 - Find the total cost of 3 T-shirts.
 - How much change will Mia get back from \$25 after she buys the 3 T-shirts?
- 34.** To determine the tip for a restaurant server, many people multiply the amount of the check by 0.15. Find the amount of the tip on a check of \$20.
- 36.** The fastest growing flowering plant is the *Hesperoyucca whipplei*. It was recorded that one of these plants grew at a rate of 25.4 cm per day. How many centimeters did this plant grow in 7 days?
- 38.** Raul, Tim, Yuko, and Joe have to line up according to height from tallest to shortest. Raul is 145.52 cm tall; Tim is 151 cm tall; Yuko is 159.5 cm tall; and Joe is 145.25 cm tall. Who is first in line?



- 35.** Gary had 10 rosebushes to plant. On Friday, he planted 4 of the bushes. In simplest form, what fraction of the bushes did he plant?
- 37.** The airline that Vince is using has a baggage weight limit of 41 pounds. He has two green bags, each weighing 18.4 pounds, and one blue bag weighing 3.7 pounds. What is the combined weight of his baggage?
- A** 22.1 lbs **C** 40.5 lbs
B 38.7 lbs **D** 41 lbs



NS 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
Also **NS 1.1**

Estimating the Product of a Whole Number and a Decimal

What are some ways to estimate products with decimals?

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

Estimate $\$2.15 \times 16$.



\$2.15 per pound

Another Example How can you estimate products of decimals that are less than 1?

You already know how to estimate products of whole numbers using rounding and compatible numbers. You can use the same methods to estimate products with decimals.

Manuel found the total distance he walks to and from school is equal to 0.75 mile. If Manuel walks to and from school 184 days in one year, about how many total miles will he walk?

Using rounding

$$\begin{array}{r} 184 \times 0.75 \\ \downarrow \quad \downarrow \\ 200 \times 0.8 = 160.0 \end{array}$$

Tip Be sure to place the decimal point correctly.

Using compatible numbers

$$\begin{array}{r} 184 \times 0.75 \\ \downarrow \quad \downarrow \\ 180 \times 0.8 = 144.0 \end{array}$$

Compatible numbers are close to the actual numbers and are easy to multiply.

Since the compatible numbers are closer to the actual numbers than the rounded numbers, that estimate is closer to the actual product.

Manuel will walk about 144 miles to and from school in one year.

Guided Practice*

Do you know HOW?

In 1 through 6, estimate each product using rounding or compatible numbers.

- 0.87×412
- 104×0.33
- 9.02×80
- 0.54×24
- 33.05×200
- 0.79×51

Do you UNDERSTAND?

- Writing to Explain** How can estimating be helpful before finding an actual product?
- About how much money would have to be spent on 16 pounds of cheese if the price is \$3.95 per pound?

One Way

Round each number to the greatest place that has a non-zero digit.

$$\begin{array}{r} \$2.15 \times 16 \\ \downarrow \quad \downarrow \\ \$2 \times 20 \end{array}$$

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

The cheese will cost about \$40.

Another Way

Use compatible numbers that you can multiply with mentally.

$$\begin{array}{r} \$2.15 \times 16 \\ \downarrow \quad \downarrow \\ \$2 \times 15 \end{array}$$

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

The cheese will cost about \$30.

Independent Practice

Estimate each product.

9. 0.12×5

10. 45.3×4

11. 99.2×82

12. 37×0.93

13. 0.667×4

14. 0.6×184

15. 25×0.37

16. 0.904×75

Problem Solving

For 17 and 18, use the chart.

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

18. **Number Sense** Pat has \$55. Does she have enough money to buy 4 T-shirts?

19. **Think About the Process** You want to estimate 0.67×85 . Which way will give you an estimate that is closest to the actual product?

- A Round 0.67 to 1.0 and 85 to 90, multiply.
- B Round 0.67 to 0.7 and 85 to 90, multiply.
- C Round 0.67 to 70 and 85 to 80, multiply.
- D Round 0.67 to 1.0 and 85 to 80, multiply.

| Souvenir | Cost |
|----------|---------|
| Button | \$1.95 |
| T-Shirt | \$12.50 |

20. Dentalia shells were used by some Native American tribes in California to make jewelry. Each dentalia shell is 1.25 inches long. If a necklace had been made with 18 dentalia shells, about how long was this necklace? Explain your estimate.

21. **Reasoning** Will the actual product of 7.69×5 be greater than or less than its estimate of 8×5 ? Why?

22. **Algebra** If $n \times 4.16$ is about 200, what is a reasonable estimate for n ?



NS 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
Also **MR 2.1**

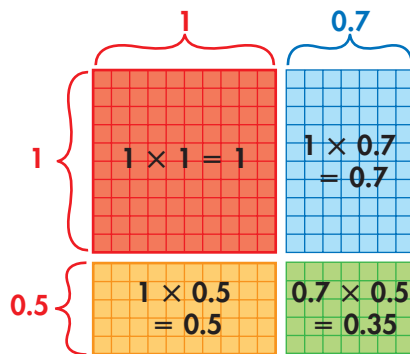
Multiplying Two Decimals

How can you multiply two decimals?

Nancy walked 1.7 miles in 1 hour. If she walks at the same rate, how far will she walk in 1.5 hours?

Choose an Operation

Multiply to find 1.7×1.5 .



Guided Practice*

Do you know HOW?

For **1** through **6**, estimate first. Then find each product. Check that your answer is reasonable.

1.
$$\begin{array}{r} 9.3 \\ \times 4.1 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 3.02 \\ \times 0.6 \\ \hline \end{array}$$

3. 0.7×1.9

4. 12.6×0.2

5. 8.3×10.7

6. 2.04×1.8

Do you UNDERSTAND?

7. **Writing to Explain** How is multiplying two decimals different from multiplying one decimal by a whole number?
8. Using the example above, how many miles will Nancy walk in 2.8 hours? Show an estimate first.

Independent Practice

For **9** through **28**, estimate first. Then find each product. Check that your answer is reasonable.

9.
$$\begin{array}{r} 5.2 \\ \times 4.6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 0.05 \\ \times 4.5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 19.1 \\ \times 8.5 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 8.6 \\ \times 0.08 \\ \hline \end{array}$$

13. 0.6×0.49

14. 32.3×0.7

15. 3.42×4.7

16. 8.11×0.05

17. 3.5×0.4

18. 28.6×0.17

19. 0.21×1.5

20. 1.11×6.1

21. 6.8×7.2

22. 8.3×6.4

23. 9.1×11.6

24. 0.04×15.6

25. 18.1×3.7

26. 0.06×15

27. 0.28×3.7

28. 3.14×6.2

Step 1Estimate 1.7×1.5

$$\begin{array}{c} \downarrow \quad \downarrow \\ 2 \times 2 = 4 \end{array}$$

Step 2

Multiply as you would with whole numbers.

$$\begin{array}{r} 1.7 \\ \times 1.5 \\ \hline 85 \\ 170 \\ \hline 255 \end{array}$$

Step 3Count decimal places in *both* factors.

Write the decimal point in the product.

$$\begin{array}{r} 1.7 \leftarrow 1 \text{ decimal place} \\ \times 1.5 \leftarrow 1 \text{ decimal place} \\ \hline 85 \\ 170 \\ \hline 2.55 \leftarrow 2 \text{ places} \end{array}$$

Step 4




Check your answer.

Since 2.55 is close to your estimate of 4, the answer is reasonable.

In 1.5 hours, Nancy will walk 2.55 miles.

Problem Solving

29. The fifth-grade planning committee needs to buy items for sandwiches for its annual lunch. Fill in the chart and determine the amount of money they'll need to buy the items for sandwiches.
30. **Geometry** Karly's bedroom measures 13.2 feet long by 10.3 feet wide. Use the formula $\text{Area} = \text{length} \times \text{width}$ to determine the number of square feet for the floor of Karly's bedroom.
31. A bag of grass seed weighs 5.8 pounds. How many pounds would 2.5 bags weigh?
- A 14.5
B 13.8
C 8.3
D 3.3
33. Mary Ann ordered 3 pens and a box of paper on the Internet. Each pen cost \$1.65 and the paper cost \$3.95 per box. How much did she spend?
35. **Writing to Explain** How does estimation help you place the decimal point in a product correctly?

| Item | Amount | Price | Total |
|---|-------------|--------------------|-------|
|  | 15.5 pounds | \$3.50 per pound | |
|  | 10.5 pounds | \$2.90 per pound | |
|  | 12 packages | \$2.50 per package | |

32. Joy drinks 4 bottles of water per day. Each bottle contains 16.5 fluid ounces. She wants to find the total number of fluid ounces she drinks per day. How many decimal places will be in the product?
- A One C Three
B Two D Four
34. An astronaut's Apollo space suit weighs 29.8 pounds on the moon. It weighs approximately 6.02 times as much on Earth. About how much does an Apollo space suit weigh on Earth?



NS 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

Multiplying with Zeros in the Product

When do you insert zeros in the product?

The smallest mammal in the world is the bumblebee bat.

The weight of the bumblebee bat is equal to 0.05 times the weight of a mouse. How much does the bumblebee bat weigh?

Choose an Operation Multiply to find 1.5×0.05 .



Guided Practice*

Do you know HOW?

Find each product.

1.
$$\begin{array}{r} 1.4 \\ \times 0.06 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 0.4 \\ \times 0.12 \\ \hline \end{array}$$

3. 0.002×9

4. 0.97×0.04

5. 2.5×0.023

6. 0.5×0.009

Do you UNDERSTAND?

7. In the example above, why do you need to move the decimal point 3 places to place it in the product?

8. **Writing to Explain** Is the product of 0.03×0.03 the same as the product of 0.3×0.003 ? Explain.

Independent Practice

Find each product.

9.
$$\begin{array}{r} 0.3 \\ \times 0.2 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 0.02 \\ \times 0.17 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 6.04 \\ \times 0.01 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 0.12 \\ \times 0.05 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 0.4 \\ \times 0.5 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 0.03 \\ \times 0.16 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 3.1 \\ \times 0.06 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 0.92 \\ \times 0.03 \\ \hline \end{array}$$

17. 0.87×0.04

18. 0.002×6.01

19. 0.6×0.08

20. 0.005×9

21. 0.09×0.01

22. 0.18×0.07

23. 0.4×0.06

24. 0.71×0.09

25. 1.07×0.08

26. 5.02×0.002

27. 3.74×0.003

28. 0.09×0.7

29. 3.04×0.009

30. 6.03×0.04

31. 8.68×0.5

32. 0.08×0.3

Step 1

Multiply as you would with whole numbers.

$$\begin{array}{r} 2 \\ 1.5 \\ \times 0.05 \\ \hline 75 \end{array}$$

Step 2

Count the decimal places in *both* factors. Sometimes you have to insert one or more zeros into the product to place the decimal point.

$$\begin{array}{r} 1.5 \leftarrow 1 \text{ decimal place} \\ \times 0.05 \leftarrow 2 \text{ decimal places} \\ \hline 0.075 \leftarrow 3 \text{ decimal places} \end{array}$$

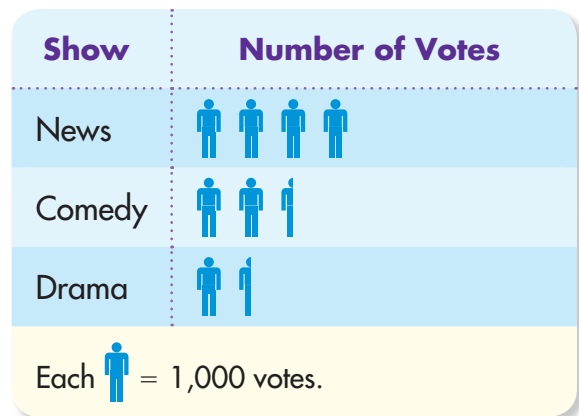
Since 3 decimal places are needed, insert a zero for the extra place.

The bumblebee bat weighs 0.075 of an ounce.

Problem Solving

33. In a phone survey, people were asked to name their favorite type of television show. The results are shown at the right.

- How many people named comedy as their favorite type of show?
- How many people were surveyed in all?



34. To promote a sale, a local supermarket is mailing postcards. Each postcard costs \$0.08 to print and \$0.29 to mail. How much will it cost to print and mail the postcards to 10,000 people?

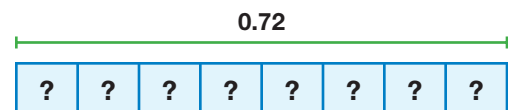
36. Erik spends 2.5 hours each day using his home computer. If the computer uses 0.8 kilowatt of electricity per hour, how many kilowatts of electricity does Erik use each day?

- 0.02 kilowatts
- 0.2 kilowatts
- 2 kilowatts
- 20 kilowatts

35. Algebra The numbers below follow a pattern and are arranged from greatest to least. What number does x represent?

678,944 678,942 678,940 x

37. Find the missing factor represented by the diagram below. Then write the equation.



38. A Baltimore oriole weighs about 1.2 ounces. Is the weight of 10 orioles greater than or less than one pound?



MR 2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.
Also **MR 2.0, 2.6, NS 2.1**

Problem Solving

Reasonableness

Julia bought 4 new hubcaps for her car. What was the total cost?

Is the following cost reasonable?

Answer: $\$75.80 \times 4 = \30.320

So, the total cost was \$30.32.

After you solve a problem, check to see if your answer is reasonable.



\$75.80 each

Guided Practice*

Do you know HOW?

Look back and check. Tell if the answer is reasonable. Explain why or why not.

1. Derek bought 3 T-shirts that cost \$6.79 apiece. How much did he pay?

Answer: Derek paid \$20.37.

2. If 54 photos are put in an album that holds 10 photos per page, how many pages are needed in all?

Answer: 5 pages with 4 photos left

Do you UNDERSTAND?

3. If an estimate is close to the calculated answer, does that always mean that the calculated answer is correct? Explain.
4. **Write a Problem** Write a real-world problem that you can solve by multiplying. Give an answer to be checked for reasonableness.

Independent Practice

In 5 through 7, look back and check. Tell if the answer is reasonable. Explain why or why not.

5. Nicole bought 1.8 pounds of cashews for \$3.80 a pound. How much did she pay?

Answer: Nicole paid \$68.40.

6. Jeremy bought 12 used books at a book fair. He paid \$1.25 for each book. How much did he pay?

Answer: Jeremy paid \$18.

Stuck? Try this....

- What do I know?
- What am I asked to find?
- What diagram can I use to help understand the problem?
- Can I use addition, subtraction, multiplication, or division?
- Is all of my work correct?
- Did I answer the right question?
- Is my answer reasonable?

Look Back and Check

Is my calculation reasonable?

Think I can use estimation.

$\$75.80$ is about 80 .

$$\$80 \times 4 = \$320.$$

My answer was $\$30.32$, but my estimate was $\$320$. My answer is not reasonable. I put the decimal point in the wrong place.

Did I answer the right question?

Think The question asked for the total cost. I answered the right question, but my calculation was incorrect.

The correct answer is $\$303.20$.

7. Mrs. Goia has 49 students in her art classes. She is ordering art supplies. Use the table at the right.

a How many cases of pastels does she need to order?

Answer: 17 cases

b How many cases of charcoals does she need to order?

Answer: 8 cases with 1 student left

| Art Supplies | |
|-------------------|--------------------|
| Item | Number of Students |
| Case of pastels | 3 |
| Case of paints | 4 |
| Case of charcoals | 6 |

8. Lionel is buying ice chests to hold 144 bottles of lemonade for a picnic. Each ice chest holds 20 bottles and some ice. How many ice chests should he buy? Explain.

10. Marcia has 27 red beads and 42 blue beads. How many beads does she have in all? Write an equation and solve.

| | |
|-----|----|
| b | |
| 27 | 42 |

9. **Estimation** Bridget sold 62 tickets to a school concert at $\$3.95$ each. About how much money did she collect for all 62 tickets?

11. Pia needs 100 red beads to make a necklace. She already has 38 red beads. How many more red beads does she need? Write an equation and solve.

| | |
|-----|-----|
| 100 | |
| 38 | r |

12. Will earned $\$1,800$ in 12 months for delivering newspapers. He earned the same amount each month. How much did he earn each month?

13. Joyce bought a sweater for $\$25.79$ and a skirt for $\$19.95$. She paid with a $\$50$ bill. How much change did she receive?

1. April rode 12.3 miles on her bicycle on Monday. Which is the best estimate of the total distance April will ride if she rides the same distance each day for 7 days? (6-3)

- A 84
- B 91
- C 105
- D 120

2. A farmer plants 0.4 of a field with wheat. The field is 3.45 acres in size. How many acres are planted with wheat? (6-4)

- A 0.126
- B 0.138
- C 1.26
- D 1.38

3. If the product of 1,251 and 30 is 37,530, what is the product of 12.51 and 30? (6-2)

- A 3.753
- B 37.53
- C 375.3
- D 3,753

4. LaDonna bought 6 DVDs for presents. Each DVD was \$24.57, including tax. Which is the best estimate of the amount of money LaDonna spent on the DVDs? (6-3)

- A \$100
- B \$120
- C \$130
- D \$150

5. A marathon race has 522 runners divided into 6 groups. What is a reasonable number of runners in each group? (6-6)

- A 112, because $522 \div 6$ is about $550 \div 5 = 110$
- B 98, because $522 \div 6$ is about $500 \div 5 = 100$
- C 87, because $522 \div 6$ is about $540 \div 6 = 90$
- D 82, because $522 \div 6$ is about $480 \div 6 = 80$

6. The table shows the average travel time to work for some cities. How many minutes would a resident of Philadelphia spend traveling to work and back home in a month with 22 work days? (6-2)

| City | Minutes Traveled to Work |
|--------------|--------------------------|
| New York | 39.0 |
| Los Angeles | 28.1 |
| Philadelphia | 29.2 |

- A 123.64
- B 128.48
- C 1,236.4
- D 1,284.8

7. If the product of 475 and 2 is 950, what is the product of 4.75 and 0.002? (6-5)

- A 0.00095
- B 0.0095
- C 0.095
- D 0.95

8. Lucia scored an 8.65 on her first gymnastics event at a meet. If she scores the same score on each of four events, what will be her total score at the meet? (6-2)
- A 32.48
B 34.6
C 34.8
D 346
9. Ahmad is downloading 10 files onto his computer. Each file is 4.82 MB in size. How many megabytes are used by all the files combined? (6-1)
- A 482
B 48.2
C 0.482
D 0.0482
10. What is 3.57×4.6 ? (6-4)
- A 3.570
B 13.882
C 16.422
D 164.22
11. What steps can be taken to find the product of 7.1 and 1,000? (6-1)
- A Move the decimal point 4 places to the right and annex 3 zeros.
B Move the decimal point 4 places to the right and annex 2 zeros.
C Move the decimal point 3 places to the right and annex 3 zeros.
D Move the decimal point 3 places to the right and annex 2 zeros.

12.

| Notebook Prices | |
|-----------------|--------|
| Quantity | Cost |
| 1 | \$1.29 |
| 2 | \$2.32 |
| 5 | \$4.80 |
| 10 | \$9.00 |

How much would 10 students save if they bought 10 notebooks as a group rather than individually. (6-3)

- A \$3.90
B \$4.20
C \$5.51
D \$7.71
13. Which of the following provides the best estimate of the product of 204 and 0.46? (6-3)
- A $200 \times 0.5 = 100$
B $250 \times 0.5 = 125$
C $200 \times 1 = 200$
D $250 \times 1 = 250$
14. What is 2.1×0.005 ? (6-5)
- A 0.0105
B 0.0150
C 0.1005
D 0.1050
15. What is 0.42×100 ? (6-1)
- A 0.042
B 4.2
C 42
D 420

Set A, pages 136–137

Use the patterns in this table to find $\$8.56 \times 10$ and $\$0.36 \times 100$.

| Multiply by | Move the decimal point to the right |
|-------------|-------------------------------------|
| 1 | 0 places |
| 10 | 1 place |
| 100 | 2 places |
| 1,000 | 3 places |

$$\$8.56 \times 10 = \$85.6 = \$85.60$$

$$\$0.36 \times 100 = \$36 = \$36.00$$

Set B, pages 138–139

Find 12×0.15 .

Multiply as you would with whole numbers.

$$\begin{array}{r} 12 \\ \times 0.15 \\ \hline 60 \\ + 120 \\ \hline 180 \end{array}$$

Count the decimal places in both factors. Then place the decimal point in the product the same number of places from the right.

$$12 \times 0.15 = 1.80$$

Set C, pages 140–141

Estimate $\$4.78 \times 18$.

Round each number to the greatest place that has a non-zero digit.

$$\begin{array}{r} \$4.78 \times 18 \\ \downarrow \quad \downarrow \\ \$5 \times 20 \end{array}$$

$$\$5 \times 20 = \$100.$$

Remember when you need to move the decimal point beyond the number of digits in the number you are multiplying, annex 1 or more zeros.

Use mental math to solve each problem.

- 10×4.5
- 100×4.5
- $1,000 \times 4.5$
- 10×0.89
- $1,000 \times 0.98$
- 10×0.0089

Remember to count the decimal places in both factors before you place the decimal point in the product.

Find each product.

- 100×3.67
- 5.86×5
- 14×9.67
- 8×56.7
- 11×0.006
- 2.03×6

Remember that compatible numbers can also be used to estimate products.

Estimate each product.

- 24×3.67
- 5.86×52
- 14×9.67
- 11×59.7
- $\$1.52 \times 71$
- 34×41.5

Set D, pages 142–143

Find 3.6×2.15 .

Estimate first: $4 \times 2 = 8$

Multiply as you would with whole numbers.

$$\begin{array}{r} 2.15 \\ \times 3.6 \\ \hline 1290 \\ + 6450 \\ \hline 7740 \end{array}$$

Count the decimal places in both factors.
Place the decimal point in the product.

$$3.6 \times 2.15 = 7.74.$$

Remember to count the decimal places in both factors before placing the decimal point in the product.

Find each product.

- | | |
|----------------------|----------------------|
| 1. 2.4×3.67 | 2. 5.86×5.2 |
| 3. 8.3×10.7 | 4. 3.42×4.7 |
| 5. 1.4×9.67 | 6. 11.2×9.7 |
| 7. 3.4×8.42 | 8. 3.9×10.6 |

Set E, pages 144–145

Find 1.07×0.08 .

Multiply as you would with whole numbers.

$$\begin{array}{r} 1.07 \\ \times 0.08 \\ \hline 856 \end{array}$$

Count the decimal places in both factors. You may need to insert one or more zeros in the product to place the decimal point.

$$1.07 \times 0.08 = 0.0856$$

Remember that zeros may have to be inserted at the beginning of the product before you place the decimal in the product.

Find each product.

- | | |
|------------------------|-----------------------|
| 1. 0.12×0.05 | 2. 0.08×0.6 |
| 3. 6.01×0.002 | 4. 0.01×6.04 |

Set F, pages 146–147

An album holds 4 photos per page. How many pages are needed for 30 photos?

$$30 \div 4 = 7 \text{ R}2$$

Possible answer: 7 pages

Ask: *Is my calculation reasonable?*
Did I answer the right question?

In this case, the calculation is reasonable, but the question asked for the number of pages needed. Since there is a remainder of 2, one more page is needed. The correct answer is 8 pages.

Remember to check the reasonableness of a solution.

Tell if the answer is reasonable.
Explain why or why not.

- Sarah's DVD collection is stored in a cabinet that holds 6 DVDs on each shelf. She has 89 DVDs in her collection. How many shelves will she need to hold her collection?

Possible answer: 15 shelves