

Today's lesson is on **Multiplying Decimals**

Gather these materials:

Clickers

Notebooks

Pencil

Get ready to log in.

1-5

Multiplying Decimals

© **CONTENT STANDARDS**

6.NS.3, 6.EE.2.b

What You'll Learn

To multiply decimals and to solve problems involving decimals

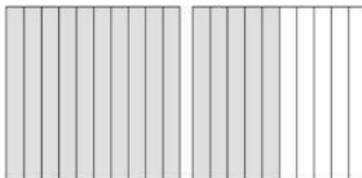
Why Learn This?

Understanding how much a plant will grow over time is important in gardening. You can multiply decimals to estimate how tall a flower or tree will grow.

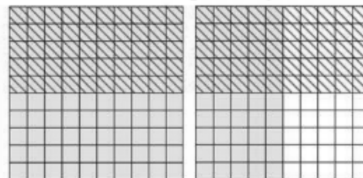


The model below shows how to find 0.5×1.5 . You are finding half of 1.5.

Shade 15 columns to represent 1.5.



Shade 5 rows of each grid to represent 0.5.



The shadings overlap in 75 squares, or 0.75. So $0.5 \times 1.5 = 0.75$.

The model shows a pattern. To find the number of decimal places in a product, add the number of decimal places in the factors.

EXAMPLE Multiplying by a Decimal

1 Find the product 0.47×8 .

$$\begin{array}{r} 0.47 \leftarrow 2 \text{ decimal places} \\ \times 8 \leftarrow + 0 \text{ decimal places} \\ \hline 3.76 \leftarrow 2 \text{ decimal places} \end{array}$$

1 **EXAMPLE** Find the product 2.73×4 .

$$\begin{array}{r} 2.73 \leftarrow \text{ decimal places} \\ \times 4 \leftarrow + \text{ decimal places} \\ \hline \text{ decimal places} \end{array}$$



Find the product of 6×0.13

(A) 6.8

(B) 0.78

(C) 7.8

(D) 0.68



Find the product of 4.37×5

(A) 2.185

(B) 21.85

(C) 218.5

(D) 21.55

You can show multiplication in these three ways:

$$0.5 \times 1.5$$

$$0.5 \cdot 1.5$$

$$0.5(1.5)$$

EXAMPLE Multiplying Decimals

2 Find the product $1.31 \cdot 2.4$.

$$\begin{array}{r} 1.31 \leftarrow 2 \text{ decimal places} \\ \times 2.4 \leftarrow + 1 \text{ decimal place} \\ \hline 524 \\ + 262 \\ \hline 3.144 \leftarrow 3 \text{ decimal places} \end{array}$$

Check for Reasonableness It makes sense that a number slightly greater than 1 times a number slightly greater than 2 equals a product of about 3.



Find the product: $0.3(0.2)$

Use your number pad and text in your answer now

You can also use compatible numbers to estimate with decimals.

EXAMPLE Application: Predicting Growth



The leaves and flowers of eucalyptus trees are the koala's main diet.

- 3 A eucalyptus tree grows 5.45 meters in one year. At that rate, how much does the tree grow in 3.5 years?

Estimate $3.5 \times 5.45 \approx 4 \times 5$, or 20 ← 4 and 5 are compatible numbers.

$$\begin{array}{r} 5.45 \leftarrow 2 \text{ decimal places} \\ \times 3.5 \leftarrow 1 \text{ decimal place} \\ \hline 2725 \\ + 1635 \\ \hline 19.075 \leftarrow 3 \text{ decimal places} \end{array}$$

At that rate, the tree grows about 19.075 meters in 3.5 years.

Check for Reasonableness 19.075 is close to 20, so the answer is reasonable.



You are multiplying 9.876×5.4321
How many decimal places does the answer have?

use your number pad and text in your answer now



Is the product greater than, less than, or equal to 1?
 2×0.2

A greater than 1

B less than 1

C equal to 1

There are shortcuts for multiplying decimals by 10, 100, 1000, etc.

Use a calculator to multiply

$$2.6 \times 10$$

$$2.6 \times 100$$

$$2.6 \times 1000$$

What do you notice about the movement of the decimal point in your answer.

To review, here are the steps for multiplying decimals:

Multiplying Decimals

- (1) When multiplying numbers that contain decimals, treat all of the digits as integers (ignore their decimal value).
- (2) From the right side of each number, count the number of decimal places in both numbers
- (3) Find the sum of the decimal places from both numbers
- (4) In the final product, locate the decimal point that number of spaces from the right-hand side of the number

Powerdown your clickers and put them away.

You have time to begin your assignment.

Practice 1-5

Multiplying Decimals

Place the decimal point in each product.

1. $4.3 \times 2.9 = 1247$

2. $0.279 \times 53 = 14787$

3. $4.09 \times 3.96 = 161964$

4. $5.90 \times 6.3 = 3717$

5. $0.74 \times 83 = 6142$

6. $2.06 \times 15.9 = 32754$

Find each product.

7. 43.59×0.1

8. 246×0.01

9.
$$\begin{array}{r} 0.19 \\ \times 0.05 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 240 \\ \times 0.02 \\ \hline \end{array}$$

Write a multiplication statement you could use for each situation.

- 11. A pen costs \$.59. How much would a dozen pens cost?

- 12. A mint costs \$.02. How much would a roll of 10 mints cost?

- 13. An orange costs \$.09. How much would 2 dozen oranges cost?

Find each product. Tell whether you would use mental math, paper and pencil, or a calculator.

14. $19(0.35)$

15. 30×0.1

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