

VOLUME 1

 enVision[®] Mathematics

SAVVAS

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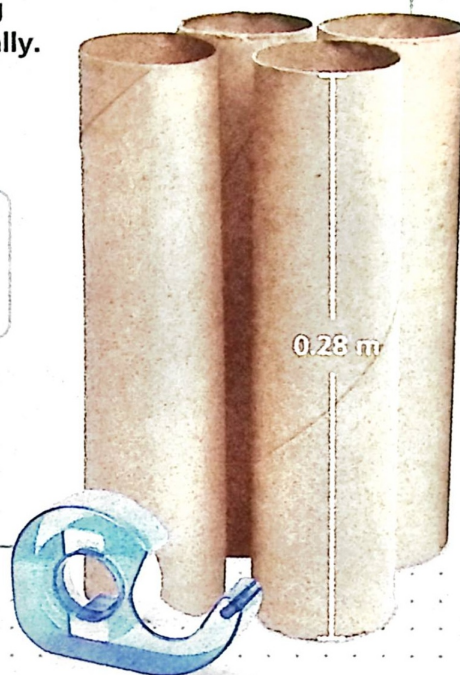


Solve & Discuss It!

Maxine is making a model windmill for a science fair. She is connecting 4 cardboard tubes together vertically. Each tube is 0.28 meter in length. What is the combined measure of the connected tubes?

Use Appropriate Tools

You can use decimal grids to calculate with decimals.



ACTIVITY

Lesson 1-1

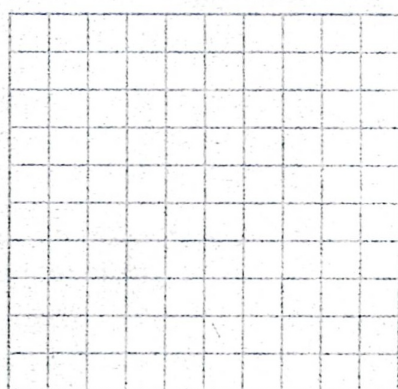
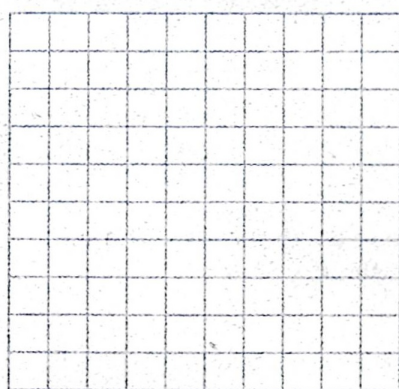
Fluently Add, Subtract, and Multiply Decimals



Go Online

I can...

add, subtract, and multiply decimals.



Focus on math practices

Look for Relationships Suppose that Maxine made another windmill model by connecting 4 cardboard tubes that are each 2.8 meters long. What is the combined measure of this model? What relationships do you see in the factors you used here and above? Explain how this helps you solve the problem.

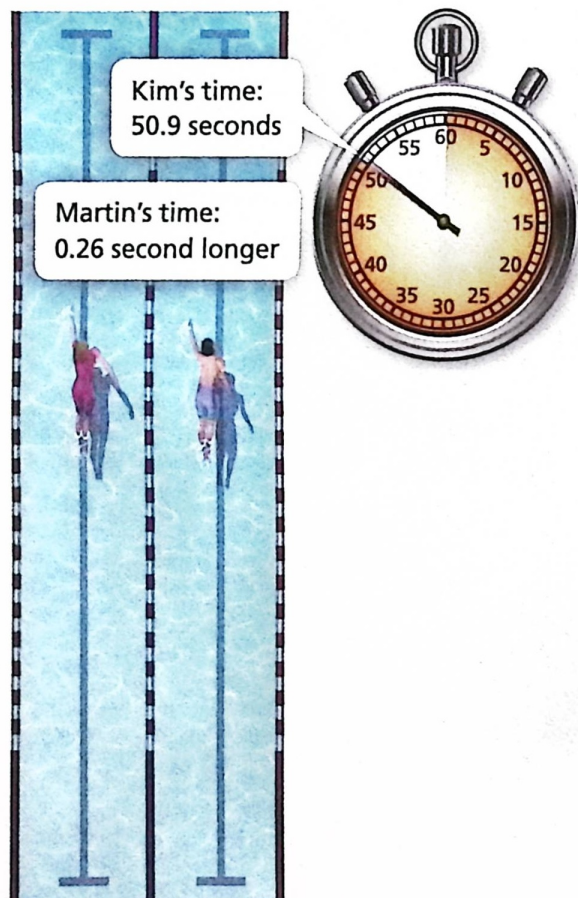
EXAMPLE 1 Add Decimals

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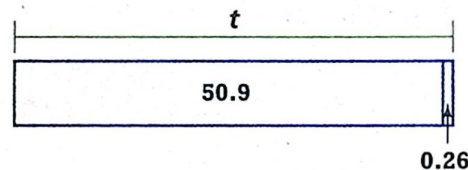


Kim and Martin swam 50 meters. Martin took 0.26 second longer than Kim. What was Martin's time in the race?

Be Precise Why is precision important when working with decimals?



Find $50.9 + 0.26$.



Estimate first by rounding each addend.

50.9 rounds to 51.

0.26 rounds to 0.3.

$$51 + 0.3 = 51.3$$

Find the sum.

$$\begin{array}{r} 50.90 \\ + 0.26 \\ \hline \end{array}$$

Annex a **zero** so each place has a digit.

Remember to line up the place values to add.

Add each place.

$$\begin{array}{r} 50.90 \\ + 0.26 \\ \hline 51.16 \end{array}$$

You can regroup the sum of nine tenths and two tenths.

Martin swam the race in 51.16 seconds. The sum 51.16 is close to the estimate, 51.3.

Try It!

Suppose that Martin finished the race 0.47 second after Kim. What was Martin's time in the race? Use an estimate to check that your answer is reasonable.

Convince Me! If Martin finished the race 0.267 second after Kim, you would need to add 0.267 to 50.9 to solve the problem. How is adding 0.267 to 50.9 different from adding 0.26 to 50.9?

EXAMPLE 2



Subtract Decimals



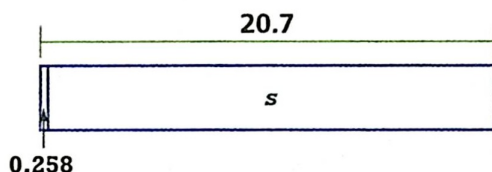
ACTIVITY



ASSESS

Amy ran a race in 20.7 seconds. Katie finished the race 0.258 second before Amy. How long did it take Katie to run the race?

Find $20.7 - 0.258$.



Estimate the difference by rounding.

$$20.7 - 0.3 = 20.4$$

0.258 rounds to 0.3.

To find the difference, line up the place values.

$$\begin{array}{r} 20.700 \text{ Annex zeros as placeholders.} \\ - 0.258 \\ \hline \end{array}$$

Subtract each place. Regroup as needed.

$$\begin{array}{r} \overset{9}{\underset{6}{\overset{10}{10}}} \\ 20.\overset{9}{\underset{6}{\overset{10}{10}}}00 \\ - 0.258 \\ \hline 20.442 \end{array}$$

Katie ran the race in 20.442 seconds. 20.442 is close to the estimate, 20.4, so the answer is reasonable.



Try It!

Suppose that Katie finished the race 0.13 second before Amy. What was Katie's time in the race? Use an estimate to check that your answer is reasonable.

EXAMPLE 3



Multiply Decimals

What is the area of this antique map? Use the formula $A = \ell w$ to find the area of the map.

Multiply as you would with whole numbers. Then place the decimal point in the product. Annex zeros if needed. The number of decimal places in the product is the sum of the number of decimal places in the factors.

$$\begin{array}{r} 3.25 \text{ 2 decimal places (hundredths)} \\ \times 2.5 \text{ 1 decimal place (tenths)} \\ \hline 1625 \\ + 6500 \\ \hline 8.125 \text{ 3 decimal places (tenths times hundredths equals thousandths)} \end{array}$$

The area of the antique map is 8.125 ft^2 .



3.25 ft

2.5 ft



Try It!

How do you determine where to place the decimal point in the product?

$$\begin{array}{r} 0.43 \text{ } \boxed{} \text{ decimal place(s)} \\ \times 0.2 \text{ } \boxed{} \text{ decimal place(s)} \\ \hline 0.086 \text{ } \boxed{} \text{ decimal place(s)} \end{array}$$

Annex zeros if needed.



To add decimals, line up place values and add. Regroup as needed.

$$\begin{array}{r} 50.90 \\ + 0.26 \\ \hline 51.16 \end{array}$$

To subtract decimals, line up place values and subtract. Regroup as needed.

$$\begin{array}{r} 20.\overset{9}{\cancel{7}}\overset{10}{00} \\ - 0.258 \\ \hline 20.442 \end{array}$$

To multiply decimals, multiply as you would with whole numbers. Then use the number of decimal places in the factors to place the decimal point in the product.

$$\begin{array}{r} 1.35 \\ \times 4.6 \\ \hline 810 \\ + 5400 \\ \hline 6.210 \end{array}$$

Do You Understand?

- Essential Question** How can you add, subtract, and multiply with decimals?
- Generalize** How is adding and subtracting decimals similar to and different from adding and subtracting whole numbers?
- What can you do if a decimal product has final zeros to the right of the decimal point?
- Critique Reasoning** Diego says that the product of 0.51×2.427 will have five decimal places. Is Diego correct? Explain.

Do You Know How?

In 5–10, find each sum or difference.

5. $5.9 + 2.7$

6. $4.01 - 2.95$

7. $6.8 - 1.45$

8. $9.62 - 0.3$

9. $2.57 + 7.706$

10. $15 - 6.108$

In 11–16, place the decimal point in the correct location in the product.

11. $4 \times 0.94 = 376$

12. $5 \times 0.487 = 2435$

13. $3.4 \times 6.8 = 2312$

14. $3.9 \times 0.08 = 312$

15. $0.9 \times 0.22 = 198$

16. $9 \times 1.2 = 108$

In 17 and 18, find each product.

17. 5.3×2.7

18. 8×4.09

Name: _____



PRACTICE



TUTORIAL

Practice & Problem Solving



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In 19–27, find each sum or difference.

19. $2.17 - 0.8$

20. $4.3 + 4.16$

21. $46.91 - 28.7$

22. $4.815 + 2.17$

23. $5.1 - 0.48$

24. $27 + 0.185$

25. $9.501 - 9.45$

26. $14 + 9.8$

27. $12.65 + 14.24$

In 28–33, find each product.

28. 7×0.5

29. 12×0.08

30. 24×0.17

31. 0.4×0.17

32. 1.9×0.46

33. 3.42×5.15

34. Write an equation that illustrates the following:
A number with two decimal places multiplied by
a number with one decimal place. The product
has only two nonzero digits.

35. The Bright-O Shampoo Factory includes
1.078 ounces of vanilla oil in a 6.35-ounce
bottle of shampoo. How much of the bottle
of shampoo is **NOT** vanilla oil?

In 36–38, use the graph to solve.

36. The fastest speed a table tennis ball has been
hit is about 13.07 times as fast as the speed for
the fastest swimming. What is the speed for the
table tennis ball?

37. **Look for Relationships** How fast would
1.5 times the fastest rowing speed be? Before
you solve, tell the number of decimal places in
your answer.

38. Which activity has a recorded speed about
7 times as fast as the fastest rowing speed?

