

Additional Practice 4-6

Multiply Decimals Using Partial Products

Another Look!

If a truck travels 9.5 miles on 1 gallon of fuel, how many miles will the truck travel on 5.6 gallons of fuel?

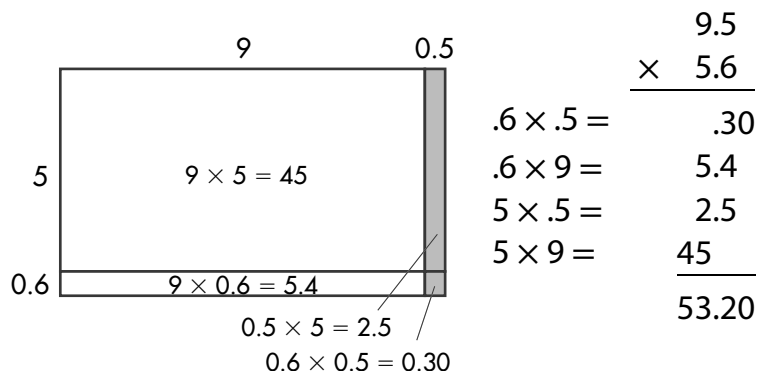
Step 1

First, estimate your product so you can check for reasonableness.

$$\begin{array}{r} 9.5 \times 5.6 \\ \downarrow \quad \downarrow \\ 10 \times 6 = 60 \end{array}$$

Step 2

Add all the partial products to find the answer. Use an area model if you need help keeping track of them.



The truck will travel 53.2 miles on 5.6 gallons of fuel.



Since 53.2 is close to the estimate 60, the answer is reasonable.

1. If a truck travels 8.6 miles on 1 gallon of fuel, how many miles will the truck travel on 9.2 gallons of fuel? Estimate. Then, find the product. Is your answer reasonable? Explain.

79.12 miles; Sample answer: My estimate of $9 \times 9 = 81$ is close to 79.12, so my answer is reasonable.

Estimate:

$$\begin{array}{r} 8.6 \times 9.2 \\ \downarrow \quad \downarrow \\ 9 \times 9 = 81 \end{array}$$

$$\begin{array}{r} 8.6 \\ \times 9.2 \\ \hline 17.2 \\ 172.0 \\ + 792.00 \\ \hline 79.12 \end{array}$$

In 2–9, estimate first. Then multiply using partial products. Check that your answer is reasonable.

2.
$$\begin{array}{r} 0.2 \\ \times 4.6 \\ \hline 0.92 \end{array}$$

3.
$$\begin{array}{r} 3.9 \\ \times 7.1 \\ \hline 27.69 \end{array}$$

4.
$$\begin{array}{r} 5.4 \\ \times 0.1 \\ \hline 0.54 \end{array}$$

5.
$$\begin{array}{r} 15.3 \\ \times 6.4 \\ \hline 97.92 \end{array}$$

6.
$$9.3 \times 5.8$$

53.94

7.
$$23.7 \times 4.4$$

104.28

8.
$$0.8 \times 0.5$$

0.4

9.
$$13.2 \times 0.3$$

3.96



10. Find the approximate length of each highway in kilometers. **Sample answers:**
A: 19.04; B: 73.92; C: 193.6

One mile is about
1.6 kilometers.

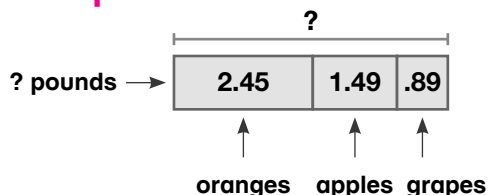


Highway	Length (miles)
A	11.9
B	46.2
C	121

11. **Higher Order Thinking** Why does multiplying numbers by 10 move the decimal point to the right, but multiplying by 0.10 moves the decimal point to the left?
Sample answer: Multiplying by 10 makes the number greater by a factor of 10, but multiplying by 0.10 makes the number 10 times as small.

12. **Make Sense and Persevere** A pick-your-own pecan farm charges \$1.35 per pound of pecans plus \$0.40 per pound to crack the pecans. Amelia picks 20 pounds of pecans. The farm cracks 5 pounds for her. How much does Amelia pay all together?
\$29

13. Adrian bought fruit to make a salad for a picnic. He bought 0.89 pound of grapes, 2.45 pounds of oranges, and 1.49 pounds of apples. What is the weight of the fruit?
4.83 pounds



14. In exercise 13, suppose grapes cost \$2.35 per pound, oranges cost \$0.99 per pound, and apples cost \$1.65 per pound. Rounding to the nearest whole number, about how much did Adrian pay for all the fruit?

Sample answer: about \$6

Assessment Practice

15. Karly used 3.5 cans of tomato sauce to make lasagna. Each can contains 10.5 ounces. How many ounces of tomato sauce is in the lasagna?

Ⓐ 24.00
 Ⓑ 36.75
 Ⓒ 52.50
 Ⓓ 63.00

16. A bag of grass seed weighs 5.8 pounds. How many pounds would 2.5 bags weigh?

Ⓐ 14.5 pounds
 Ⓑ 13.8 pounds
 Ⓒ 8.3 pounds
 Ⓓ 3.3 pounds