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3-7 Multiplying Decimals - Practice and Problem Solving

Multiply.

11. 0.7×0.4

$$\begin{array}{r} 0.7 \\ \times 0.4 \\ \hline 0.28 \end{array}$$

13. 0.4×3.7

$$\begin{array}{r} 3.7 \\ \times 0.4 \\ \hline 1.48 \end{array}$$

15. 0.98×7.3

$$\begin{array}{r} 0.98 \\ \times\ 7.3 \\ \hline 294 \\ 6.86 \\ \hline 7.154 \end{array}$$

17. 6.2×0.03

$$\begin{array}{r} 6.20 \\ \times\ 0.03 \\ \hline 0.1860 \text{ or } 0.186 \end{array}$$

19. 14.7×11.36

$$\begin{array}{r} 11.36 \\ \times\ 14.7 \\ \hline 7\ 952 \\ 45\ 44 \\ 113\ 6 \\ \hline 166.992 \end{array}$$

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21. 0.28×0.08

$$\begin{array}{r} 0.28 \\ \times\ 0.08 \\ \hline 0.0224 \end{array}$$

ALGEBRA Evaluate each expression if $x = 8.6$, $y = 0.54$, and $z = 1.18$.

23. $2.7x$

Substitute 8.6 for x.
$2.7x = 2.7 \times 8.6$
Multiply.

$$\begin{array}{r} 8.6 \\ \times 2.7 \\ \hline 602 \\ 172 \\ \hline 23.22 \end{array}$$

25. $3.45x + 7.015$

Substitute 8.6 for x.
$3.45x + 7.015 = 3.45 \times 8.6 + 7.015$
Multiply 3.45 and 8.6

$$\begin{array}{r} 3.45 \\ \times\ 8.6 \\ \hline 2070 \\ 2760 \\ \hline 29.670 \end{array}$$

Add 29.670 and 7.015.
29.670 + 7.015 = 36.685

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27. $9.1x - 4.7y$

Substitute 8.6 for x and 0.54 for y.
$9.1x - 4.7y = 9.1 \times 8.6 - 4.7 \times 0.54$
Multiply 9.1 and 8.6.

$$\begin{array}{r} 9.1 \\ \times\ 8.6 \\ \hline 546 \\ 728 \\ \hline 78.26 \end{array}$$

Multiply 4.7 and 0.54.

$$\begin{array}{r} 4.7 \\ \times\ 0.54 \\ \hline 188 \\ 235 \\ \hline 2.538 \end{array}$$

Subtract.
$78.26 - 2.538 = 75.722$

29. **ANIMALS** A giraffe can run up to 46.93 feet per second. How far could a giraffe run in 1.8 seconds?

$$\begin{array}{r} 46.93 \\ \times\ 1.8 \\ \hline 37544 \\ 4693 \\ \hline 84474 \end{array}$$

The giraffe can run 84.474 feet in 1.8 seconds.

Multiply.

31. 25.04×3.005

$$\begin{array}{r} 25.04 \\ \times\ 3.005 \\ \hline 12520 \\ 0000 \\ 0000 \\ 7512 \\ \hline 75.2452 \end{array}$$

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33. 5.12×4.001

$$
\begin{array}{r}
4.001 \\
\times\ 5.12 \\
\hline
8002 \\
4001 \\
20005 \\
\hline
20.48512
\end{array}
$$

ALGEBRA Use the order of operations to evaluate each expression if $a = 1.3$, $b = 0.042$, and $c = 2.01$.

35. $a \times 6.023 - c$

$a \times 6.023 - c = 1.3 \times 6.023 - 2.01$

First multiply 1.3×6.023

$$
\begin{array}{r}
6.023 \\
\times\ 1.3 \\
\hline
1\,8069 \\
6\,023 \\
\hline
7.8299
\end{array}
$$

Now subtract $7.8299 - 2.01$.

$$
\begin{array}{r}
7.8299 \\
-2.0100 \\
\hline
5.8199
\end{array}
$$

So, $a \times 6.023 - c = 5.8199$.

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37. *abc*

$abc = 1.3 \times 0.042 \times 2.01$

First multiply 1.3×0.042.

$$\begin{array}{r} 0.042 \\ \times\ 1.3 \\ \hline 00126 \\ 0042 \\ \hline 0.0546 \end{array}$$

Now multiply 0.0546×2.01

$$\begin{array}{r} 0.0546 \\ \times\ 2.01 \\ \hline 00546 \\ 00000 \\ 0\ 1092 \\ \hline 0.109746 \end{array}$$

So, $abc = 0.109746$.

39. **ALGEBRA** Which of the three numbers 9.2, 9.5, or 9.7 is the correct solution of $2.65t = 25.705$?

$2.65t = 25.705$

41. **FIND THE DATA** Refer to the Data File on pages 16-19. Choose some data and write a real-world problem in which you would multiply decimals.

See students' work.

For each statement below, find two decimals *a* and *b* that make the statement true. Then find two decimals *a* and *b* that make the statement false. Explain your reasoning.

43. If $ab < 1$, then $a < 1$ and $b < 1$.

Sample answer: If $ab = 0.63$, then a could be 0.9 and b could be 0.7, which are both less than 1; if $ab = 0.5$, then a could be 0.5, which is less than 1, but b would be 1.0, which is not less than 1.

CHALLENGE Evaluate each expression.

45. $0.16(7 - 2.8)$

$0.16(7 - 2.8) = 0.16 \times 4.2$

$$\begin{array}{r} 0.16 \\ \times\ 4.2 \\ \hline 032 \\ 0\ 64 \\ \hline 0.672 \end{array}$$

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47. **OPEN ENDED** Write a multiplication problem in which the product is between 0.05 and 0.75.

Sample answer: 0.1×0.6

49. **WRITING IN MATH** Describe two methods for determining where to place the decimal point in the product of two decimals.

Sample answer: Counting Method: Find the sum of the number of decimal places in each factor. The product has the same number of decimal places.; Estimation Method: Estimate the number of places.

51. Josefina took her grandmother to lunch. Josefina's lunch was $6.70, her grandmother's lunch was $7.25, and they split a dessert that cost $3.50. If there was an 8.75% tax on the food, which procedure could be used to find the amount of tax Josefina paid for their lunch?

F Add the prices of the food items.
G Add the prices of the food items to the tax rate.
H Multiply the tax rate by the price of the most expensive food item.
J Multiply the tax rate by the sum of the prices of the food items.

Tax is paid on the total bill amount. So, find the sum of the food items, then multiply the sum by the tax rate.
The answer is J.

Multiply.

53. 3.2×109

$$\begin{array}{r} 109 \\ \times\ 3.2 \\ \hline 218 \\ 327 \\ \hline 348.8 \end{array}$$

55. 2.94×16

$$\begin{array}{r} 2.94 \\ \times\ 16 \\ \hline 1764 \\ 294 \\ \hline 47.04 \end{array}$$

For Exercises 56 and 57, use the information below. The distance around Earth at the equator is about 24,889.78 miles. The distance around Earth through the North Pole and South Pole is about 24,805.94 miles.

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57. The mean distance around Earth is 24,847.86 miles. How much greater is the distance at the equator than the mean distance?

Subtract the mean distance around Earth from the distance around Earth at the equator.

$$\begin{array}{r} 24,889.78 \\ -24,847.86 \\ \hline 41.92 \end{array}$$

The distance at the equator is 41.92 miles greater than the mean distance around Earth.

PREREQUISITE SKILL Divide.

59. $81 \div 9$

$81 \div 9 = 9$

61. $63 \div 7$

$63 \div 7 = 9$