# CHAPTER 9 Multiplying and Dividing Decimals

## Lesson 9.1  Multiplying Decimals

**Multiply. Write the product as a decimal.**

**1.**  $0.9 \times 4 =$ _____ tenths $\times$ 4

$=$ _____ tenths

$=$ _____

**2.**  $1.5 \times 3 =$ _____ tenths $\times$ 3

$=$ _____ tenths

$=$ _____

**3.**  $0.08 \times 5 =$ _____ hundredths $\times$ 5

$=$ _____ hundredths

$=$ _____

**4.**  $0.27 \times 6 =$ _____ hundredths $\times$ 6

$=$ _____ hundredths

$=$ _____

**5.**  $0.36 \times 7 =$ _____ hundredths $\times$ 7

$=$ _____ hundredths

$=$ _____

**Multiply.**

**6.**
$$\begin{array}{r} 0\,.\,6 \\ \times\quad 8 \\ \hline \end{array}$$

**7.**
$$\begin{array}{r} 3\,.\,5 \\ \times\quad 7 \\ \hline \end{array}$$

**8.**
$$\begin{array}{r} 3\,.\,9 \\ \times\quad 9 \\ \hline \end{array}$$

**9.** $3 \times 8.7 =$ _____

**10.** $4 \times 6.9 =$ _____

**11.** $5 \times 7.4 =$ _____

**12.** $8 \times 9.2 =$ _____

**13.**
$$\begin{array}{r} 0\,.\,07 \\ \times\quad 6 \\ \hline \end{array}$$

**14.**
$$\begin{array}{r} 0\,.\,09 \\ \times\quad 7 \\ \hline \end{array}$$

**15.**
$$\begin{array}{r} 5\,.\,36 \\ \times\quad 8 \\ \hline \end{array}$$

**16.** $4 \times 7.04 =$ _____

**17.** $5 \times 4.58 =$ _____

**18.** $6 \times 5.64 =$ _____

**19.** $9 \times 8.36 =$ _____

**Name:** _____   **Date:** _____

# Lesson 9.2   Multiplying by Tens, Hundreds, and Thousands

**Multiply.**

**1.**   $4.85 \times 10 =$ _____

**2.**   $0.375 \times 10 =$ _____

**3.**   $4.928 \times 100 =$ _____

**4.**   $0.23 \times 1,000 =$ _____

**Complete.**

**5.**   $7.45 \times$ _____ $= 74.5$

**6.**   _____ $\times 10 = 662.2$

**7.**   $0.809 \times$ _____ $= 80.9$

**8.**   _____ $\times 100 = 403$

**9.**   $5.7 \times$ _____ $= 5,700$

**10.**   _____ $\times 1,000 = 108$

**Complete.**

**11.**   $513 = 51.3 \times$ _____

   $= 5.13 \times$ _____

   $= 0.513 \times$ _____

**12.**   $4,016 =$ _____ $\times 10$

   $=$ _____ $\times 100$

   $=$ _____ $\times 1,000$

**Complete.**

**13.**   $0.954 \times 60 = (0.954 \times$ _____ $) \times 10$

   $=$ _____ $\times 10$

   $=$ _____

**14.**   $0.376 \times 800 = (0.376 \times$ _____ $) \times 100$

   $=$ _____ $\times 100$

   $=$ _____

**Complete.**

**15.**  $0.97 \times 3{,}000 = (0.97 \times$ _____$) \times 1{,}000$

$= $ _____ $\times 1{,}000$

$= $ _____

**Find each product.**

**16.**  $1.25 \times 20 = $ _____     **17.**  $2.8 \times 40 = $ _____

**18.**  $15.9 \times 300 = $ _____     **19**  $7.286 \times 6{,}000 = $ _____

**Solve. Show your work.**

**20.**  There are 200 paperweights in a box. The mass of each paperweight is 0.085 kilogram. The mass of the empty box is 560 grams. What is the total mass of the box and 200 paperweights?

## Lesson 9.3  Dividing Decimals

**Complete. Write the quotient as a decimal.**

**1.**    $0.8 \div 2 =$ _____ tenths $\div 2$

    $=$ _____ tenths

    $=$ _____

**2.**    $2.4 \div 4 =$ _____ tenths $\div 4$

    $=$ _____ tenths

    $=$ _____

**3.**    $0.09 \div 3 =$ _____ hundredths $\div 3$

    $=$ _____ hundredths

    $=$ _____

**4.**    $0.63 \div 7 =$ _____ hundredths $\div 7$

    $=$ _____ hundredths

    $=$ _____

**5.**    $1.53 \div 9 =$ _____ hundredths $\div 9$

    $=$ _____ hundredths

    $=$ _____

**Divide.**

**6.**   4)9.2

**7.**   5)18.5

**8.**   8)25.6

**9.**   9)0.54

**10.**   3)33.99

**11.**   7)41.16

**Divide.**
**Round each quotient to the nearest tenth.**

**12.**   3.15 ÷ 4

**13.**   4.17 ÷ 6

**Divide.**
**Round each quotient to the nearest hundredth.**

**14.**   7.78 ÷ 3

**15.**   14.59 ÷ 7

# Lesson 9.4   Dividing by Tens, Hundreds, and Thousands

**Divide.**

**1.** $2.36 \div 10 =$ _____

**2.** $30.15 \div 10 =$ _____

**3.** $508.2 \div 100 =$ _____

**4.** $210 \div 100 =$ _____

**5.** $780 \div 1,000 =$ _____

**6.** $82,300 \div 1,000 =$ _____

**Complete.**

**7.** $2.87 \div$ _____ $= 0.287$

**8.** _____ $\div 10 = 34.5$

**9.** $319 \div$ _____ $= 3.19$

**10.** _____ $\div 100 = 69.2$

**11.** $5,460 \div$ _____ $= 5.46$

**12.** _____ $\div 1,000 = 48$

**Complete.**

**13.** $19.9 = 199 \div$ _____

$=$ _____ $\div 100$

$=$ _____ $\div 1,000$

**14.** $8.235 =$ _____ $\div 10$

$= 823.5 \div$ _____

$= 8,235 \div$ _____

**15.** $4.01 =$ _____ $\div 10$

$=$ _____ $\div 100$

$=$ _____ $\div 1,000$

**16.** $67.67 = 676.7 \div$ _____

$= 6,767 \div$ _____

$= 67,670 \div$ _____

**Complete.**

**17.** 298 ÷ 20 = (298 ÷ _____) ÷ 10

= _____ ÷ 10

= _____

**18.** 32 ÷ 800 = (32 ÷ _____) ÷ 100

= _____ ÷ 100

= _____

**19.** 1,200 ÷ 6,000 = (1,200 ÷ _____) ÷ 1,000

= _____ ÷ 1,000

= _____

**Divide.**

**20.** 450 ÷ 60 = _____

**21.** 64.8 ÷ 80 = _____

**22.** 36.8 ÷ 400 = _____

**23.** 576 ÷ 900 = _____

**24.** 1,050 ÷ 3,000 = _____

**25.** 8,320 ÷ 4,000 = _____

## Solve. Show your work.

**26.** Susan pours 125 liters of apple juice into 500 cups equally. How many liters of apple juice are in each cup?

**27.** A 370-meter roll of string is cut into 2,000 pieces that are all the same length. Find the length of each cut piece of string.

**28.**   Mr. Jones bought 30 files and some books. He paid $97.50 for the files.
          Each book cost 10 times as much as a file. What was the cost of each book?

**29.**   Jane bought 10 pears and 11 oranges for $10.05. The total cost of 1 pear
          and 1 orange was $0.94. How much did 1 orange cost?

# Lesson 9.5    Estimating Decimals

**Round each decimal to the nearest whole number.
Then estimate the result.**

**1.**    $9.99 + $5.99

**2.**    $49.50 + $19.65

**3.**    $99.59 − $19.95

**4.**    $89.90 − $20.25

**5.**    9.9 × 4.6

**6.**    39.7 × 7.6

**7.**    9.4 × 30.3

**8.**    34.8 ÷ 5.4

**9.**    87.7 ÷ 7.8

**10.**    96.49 ÷ 3.9

**Round each number to the nearest tenth.**
**Then estimate the result.**

**11.**   9.48 km + 13.63 km

**12.**   8.07 kg − 3.79 kg

**13.**   7.56 kg × 9

**14.**   9.64 L ÷ 8

**Solve. Show your work.**

**15.**   Each tin of biscuits is sold for $4.95. Estimate the cost of 4 tins of biscuits.

**16.**   Vivien's handspan measures 18.5 centimeters. Estimate the number of times Vivien uses her handspan to measure a length of 1 meter 75 centimeters.

# Lesson 9.6  Real-World Problems: Decimals

**Solve. Show your work.**

**1.** Each bottle contains 1.25 liters of orange juice. How many liters of orange juice are there in 8 bottles?

**2.** Keith thinks of a number. When he multiples the number by 6 and subtracts 19.85 from the product, he gets 29.77. Find the number.

**3.** An ice cream stand is 1.38 kilometers from the starting point of a bike path. Brian rides his bike from the starting point to the ice cream stand and back to the starting point 3 times. How many kilometers does Brian ride his bike?



1.38 km
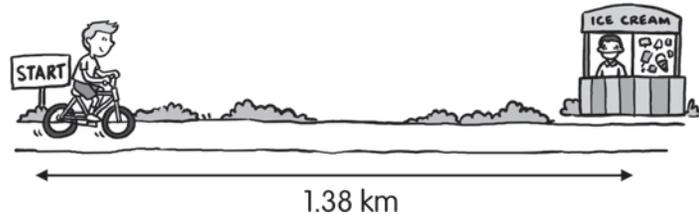
**4.** A bottle contains 0.85 liter of concentrated orange juice. Teresa adds 9 times as much water to the orange concentrate in the bottle to make drinks for her party.

    **a.** How much water does Teresa add?

    **b.** The capacity of each cup is 250 milliliters. How many full cups of juice can Teresa make?

**5.**     The cost of 4 identical pencils is $1.90. Find the cost of 14 of these pencils.



**6.**     The mass of a container is 5.81 kilograms when completely filled with sugar.
The mass of the container is 3.8 kilograms when $\frac{3}{8}$ of the sugar is removed.
What is the mass of the empty container?

**7.** At the deli, 100 grams of ham cost $1.50 and 100 grams of sausages cost $0.85 more than the ham. Paul buys 1.2 kilograms of ham and 600 grams of sausages. How much does Paul pay?

**8.** Regina had 30 meters of ribbon. She gave 2.7 meters of the ribbon to each of her four friends and used the rest to tie some presents for her birthday party. Each present required 75 centimeters of ribbon to tie. Find the maximum number of presents Regina could tie.

**9.** Maria wants to shop at Simon's Bakery. She needs to buy 100 fruitcakes for her birthday party. How much will Maria need to spend?

SIMON'S
BAKERY
1 fruitcake: $1.50
2 fruitcakes FREE for every
10 fruitcakes bought
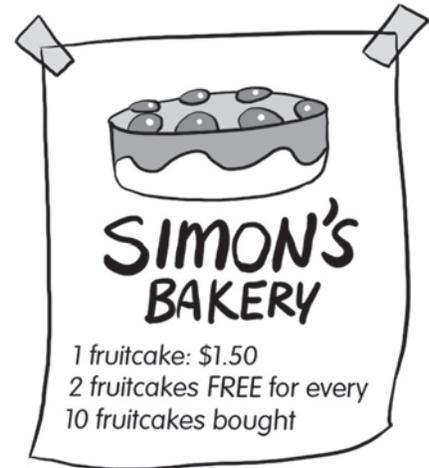
**10.** The admission fee for an exhibition is $8.50 for each adult and $3.50 for each child. On Friday, a total of $5,120 was collected. 160 more children than adults visited the exhibition. How many children visited the exhibition on Friday?

**11.** The total mass of a box and 3 identical tennis balls is 1.02 kilograms. When the number of tennis balls in the box is tripled, the total mass becomes 2.16 kilograms. What is the mass, in kilograms, of the empty box?

**12.** The table shows the cost of shrimp at three stalls:

|  | Joe's Stall | Paul's Stall | Sam's Stall |
|---|---|---|---|
| Price of Shrimp | $19.00 per kg | $2.20 per 100 g | $11.00 for 0.5 kg |

**a.** Which two stalls sell shrimp at the same price? How much do they sell 1 kilogram of shrimp for?

**b.** How much money would you save if you bought 2.5 kilograms of shrimp from the least expensive stall instead of from the stalls in part A?
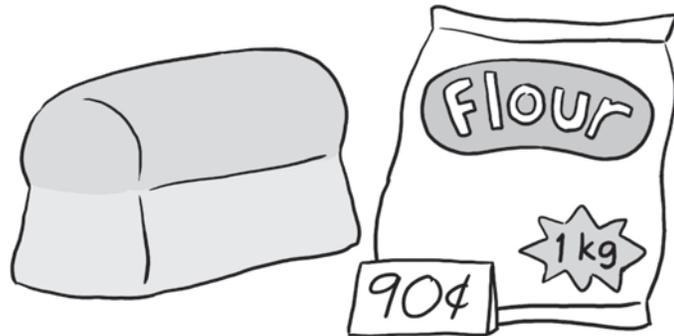
**13.** Mark and Carlos started saving money at the same time. Mark saved $1.20 daily and Carlos saved $0.30 more than Mark each day. How much did Mark save if Carlos saved a total of $11.40 more than Mark?

**14.** Fiona bought some oranges and 8 mangoes for a total of $30.80. For every mango Fiona bought, she could buy 4 oranges with the same amount of money. A mango cost $2.10 more than an orange.

**a.** What was the cost of each type of fruit?

**b.** Express the number of oranges bought as a fraction of the total number of fruits bought.

**15.** Mrs. Belen wanted to bake 10 loaves of bread but realized she needed 1.75 kilograms more of flour. If she baked 7 loaves of bread, she would have 0.5 kilogram of flour left.

**a.** How much flour was needed for each loaf of bread?

**b.** Each kilogram of flour cost $0.90. How much would Mrs. Belen pay for all of the flour she needed to bake 10 loaves of bread?

# Put on Your Thinking Cap!

**Solve. Show your work.**

1. A pile of 12 books is 1.2 meters thick. 9 of them are 9.5 centimeters thick each and the rest are of equal thickness. For the rest of the books, how thick is each of them in centimeters?

2. Charles and his 5 siblings buy a present for their mother on Mother's Day. As the eldest brother, Charles pays 0.2 of the cost of the present. The rest of his siblings pay the balance equally. Each sibling pays $9.50 less than Charles. What is the cost of the present?

**3.**     The total capacity of 1 carton is the same as the total capacity of
2 identical cups. If 1.8 liters of water are needed to fill up 3 identical cups
and 2 identical cartons, what is the capacity of a cup? Express your answer
correct to 2 decimal places.

**4.**     The total mass of 4 cartons of milk and 7 bottles of apple juice is
2.38 kilograms. The total mass of 2 cartons of milk and 3 bottles of apple
juice is 1.1 kilograms. Find the mass of a carton of milk. Give your answer in
kilograms.

**5.** At a cafe, Paul paid $12.50 for 2 cups of coffee and 2 cups of tea. The cost of each cup of tea was $\frac{2}{3}$ the cost of each cup of coffee.

 **a.** How much did each cup of coffee cost?

 **b.** How much did Paul's friend, Leon, pay for 2 cups of coffee and 1 cup of tea?

**6.** The mass of a can of orange juice is 0.16 kilogram heavier than the mass of a can of mango juice. The mass of 6 cans of orange juice is the same as the mass of 9 cans of mango juice.

 **a.** What is the mass of each can of mango juice?

 **b.** What is the mass of each can of orange juice?

**7.**   Kerrie bought 5 notebooks and 5 pens. Devon bought 8 notebooks and 4 pens. They both paid the same amount. Each notebook cost $3.70 less than the cost of each pen.

**a.**   What was the cost of each notebook?

**b.**   What was the cost of each pen?

**8.**   At a cafe, each chicken sandwich costs 0.8 times as much as each cheese sandwich. Daniel pays $46.15 for 9 chicken sandwiches and 7 cheese sandwiches.

**a.**   What is the cost of each chicken sandwich?

**b.**   What is the cost of each cheese sandwich?

**9.** James was given some alarm clocks and 30 patches to sell during a charity fund raising project. He was supposed to sell each alarm clock for $15.50 and each patch for $2.30. Instead, James worked out a plan in order to avoid accepting coins. He sold each clock for $16 and each patch for $2. James collected the same amount of money using the new prices as he would have with the old prices. How many alarm clocks did James sell?

**10.**   Sarah saves $1.50 daily while Jessica saves $1 more than Sarah each day. Although Jessica started saving 10 days later than Sarah, she has now saved $12 more than Sarah.

**a.**   How many days has Sarah been saving?

**b.**   How much money has Jessica saved so far?

11.  Albert went shopping with half of his monthly allowance. He spent $35.50 on a shirt and $\frac{3}{5}$ of the remainder on a book. He had $25.80 left after his shopping trip. What was Albert's monthly allowance?

**12.**    Regina paid $12.50 for 4 chicken sandwiches and 3 apple pies. The cost of each apple pie was 0.75 the cost of each chicken sandwich. How much did each chicken sandwich cost?