



## SKILL 4: Converting Rates

You can use conversion factors to convert from one rate to another. It is important to note whether the unit you wish to change is in the *numerator* or in the *denominator*.

To change a unit in the numerator of a rate, choose a conversion factor with that unit in the denominator. To change a unit in the denominator of a rate, choose a conversion factor with that unit in the numerator.

### Example 1

**Convert 7 feet per hour to inches per hour.**

Use 12 inches = 1 foot to convert from feet to inches.

$$\frac{7 \text{ feet}}{1 \text{ hour}} \times \frac{12 \text{ inches}}{1 \text{ foot}} = \frac{7 \cancel{\text{feet}} \times 12 \text{ inches}}{1 \text{ hour} \times 1 \cancel{\text{foot}}} = \frac{84 \text{ inches}}{1 \text{ hour}}$$

So, 7 feet per hour is equal to 84 inches per hour.

### Example 2

**Convert 56 packages per week to packages per day.**

Use 1 week = 7 days to convert from week to days.

$$\frac{56 \text{ packages}}{1 \text{ week}} \times \frac{1 \text{ week}}{7 \text{ days}} = \frac{56 \text{ packages} \times 1 \cancel{\text{week}}}{1 \cancel{\text{week}} \times 7 \text{ days}} = \frac{56 \text{ packages}}{7 \text{ days}}$$

Divide both numerator and denominator by 7 to find the packages per day.

So, 56 packages per week is equal to 8 packages per day.

### Guided Practice

1. Convert 12 quarts per day to gallons per day.

a. Write the conversion factor. \_\_\_\_\_

b. Multiply by the conversion factor. Then write the new rate.

$$\frac{12 \text{ quarts}}{1 \text{ day}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

c. 12 quarts per day = \_\_\_\_\_ gallons per day

2. Convert 50 feet per minute to feet per second.

a. Write the fraction for your conversion factor. \_\_\_\_\_

b. Multiply by your conversion factor. Then write the new rate.

$$\frac{50 \text{ feet}}{1 \text{ minute}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

c. 50 feet per minute = \_\_\_\_\_ feet per second

**SKILL 4: Practice**

Convert each rate to an equivalent rate.

1. 35 pounds per minute to pounds per hour \_\_\_\_\_
2. \$72.00 per hour to dollars per minute \_\_\_\_\_
3. 75 feet per second to feet per minute \_\_\_\_\_
4. 2.54 centimeters per inch to meters per inch \_\_\_\_\_
5. 90 quarts per hour to quarts per minute \_\_\_\_\_
6. 28.35 grams per ounce to grams per pound \_\_\_\_\_
7. 7.2 inches per second to feet per second \_\_\_\_\_
8. \$1.44 per gallon to cents per quart \_\_\_\_\_
9. \$8.00 per pound to dollars per ounce \_\_\_\_\_

Use conversion factors to complete the table.

	Name of Animal	Maximum Speed (mi/hr)	Maximum Speed (ft/sec)
10.	Elk	45	
11.	Grizzly bear		44
12.	Spider	1.17	
13.	Three-toed sloth		0.22
14.	Squirrel	12	

Solve.

15. One year, American farmers produced 133.8 bushels of corn per acre of corn crops. Convert this rate to pecks per square foot. (A bushel is equal to 4 pecks, and an acre is equal to 43,560 square feet.)
- \_\_\_\_\_

**TEST PREP**

16. How many dollars per minute are equivalent to \$48.00 per hour?

A \$.80                      C \$28.80  
B \$8.00                     D \$288

*Skill 4*

17. Which length is the shortest?

F 0.25 m                    H 250 mm  
G 2.5 cm                    J 2.5 km

*Skill 1*