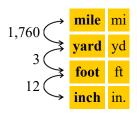
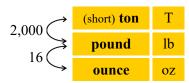
# **Convert Customary Measuring Units**

#### **Units of length**

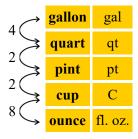


1 mile = 5,280 feet

#### Units of weight



#### **Units of volume**



When you convert between units, you either <u>multiply</u> or <u>divide</u> by the conversion factor. But which?

If the unit that you end with is *smaller* than the unit that you start with, then there should be *more* of them, and the number will get *bigger*. Use multiplication.

Conversely, if the unit that you end with is *bigger* than the unit that you started with, then there should be *fewer* of them, and the number will get *smaller*. Divide.

#### **Example 1.** Convert 11 ounces to pounds.

Ounces are *smaller units* than pounds, so there should be *more* of them. In fact, 11 ounces is less than 1 pound. Obviously, we have to divide:  $11 \div 16 = 0.6875$ . We get  $11 \text{ oz} \approx 0.69 \text{ lb}$ .

Instead of a decimal, you could give this answer as a fraction very simply:  $11 \text{ oz} = \frac{11}{16} \text{ lb.}$ 

### Example 2. Convert 56,000 inches to miles.

Miles are a lot bigger than inches, so we expect to end up with fewer of them. In other words, we expect the number 56,000 to get *smaller*, so we will need to divide.

You can convert from inches to miles in two steps: first from inches to feet, then from feet to miles. The unit keeps getting bigger, so we keep dividing to get fewer of them.

 $56,000 \div 12 \div 5,280 = 0.88383838...$  So, 56,000 inches  $\approx 0.88$  miles.

### 1. Which conversion is correct—the upper or the lower?

**a.** 
$$2.46 \text{ gal} = 2.46 \times 4 \text{ qt} = 9.84 \text{ qt}$$

$$2.46 \text{ gal} = \frac{2.46}{4} \text{ qt} = 0.615 \text{ qt}$$

**b.** 
$$11 \text{ oz} = 11 \times 16 \text{ lb} = 176 \text{ lb}$$

$$11 \text{ oz} = \frac{11}{16} \text{ lb} = 0.6875 \text{ lb}$$

**c.** 
$$450 \text{ ft} = 450 \times 5,280 \text{ mi} = 2,376,000 \text{ mi}$$

$$450 \text{ ft} = \frac{450}{5,280} \text{ mi} \approx 0.085 \text{ mi}$$

**d.** 
$$12.6 \text{ ft} = 12.6 \times 12 \text{ in} = 151.2 \text{ in}$$

$$12.6 \text{ ft} = \frac{12.6}{12} \text{ in} = 1.05 \text{ in}$$

## 2. Convert to the given unit. Round your answers to two decimals, if needed.





3. Convert to the given unit. Round your answers to two decimals, if needed.

**c.** 
$$14.7 \text{ ft} =$$
 in

**e.** 
$$281 \text{ in} = 61$$

**d.** 
$$0.8 \text{ ft} =$$
\_\_\_\_\_ in

**f.** 
$$7 \frac{1}{3}$$
 ft = \_\_\_\_\_ in

4. Convert to the given unit. Round your answers to two decimals, if needed.

**c.** 
$$3.6 \text{ lb} = \underline{\hspace{1cm}}$$
 oz

**e.** 
$$127 \text{ oz} = 16$$

**b.** 
$$35 \text{ oz} =$$
\_\_\_\_ lb

**d.** 
$$0.391 \text{ lb} = \underline{\hspace{1cm}} \text{oz}$$

**f.** 
$$6 \frac{3}{4} \text{ lb} = \underline{\hspace{1cm}} \text{oz}$$

5. Convert to the given unit. Round your answers to two decimals, if needed.

**d.** 
$$0.56 \text{ qt} = \text{fl. oz.}$$

**g.** 
$$0.054 \text{ T} = 1b$$

**e.** 
$$560 \text{ qt} = \text{gal}$$

**h.** 
$$1,200 \text{ lb} = T$$

**c.** 
$$2.3 \text{ qt} =$$
\_\_\_\_\_ fl. oz.

**f.** 
$$3.2 \text{ T} =$$
\_\_\_\_\_ lb

**Example 3.** Convert 6 lb 15 oz into ounces.

Simply change the 6 lb into ounces first, then add the 15 ounces.

**Example 4.** Convert 372 ounces into pounds and ounces.

For the pounds, figure out how many 16-ounce increments there are in 372. That is done by dividing 372 ÷ 16. If you use long division, you will have a remainder, and the remainder tells you the individual ounces that are "left over." If you use a calculator, you will get a decimal number:  $372 \div 16 = 23.25$ . The whole pounds are 23.

For the ounces, you can take the decimal part, 0.25, and figure out how many ounces is 0.25 lb. Another way is to calculate  $23 \times 16 = 368$ , and since that is 4 less than 372, there are four ounces.

In summary, 372 oz = 23 lb 4 oz.

6. Convert to the given unit. Round your answers to two decimals, if needed.

7. Convert to the given unit. Round your answers to two decimals, if needed.

**c.** 
$$86 \text{ oz} =$$
\_\_\_\_  $1b$ \_\_\_\_  $oz$ 

**d.** 
$$145 \text{ oz} =$$
\_\_\_\_  $1b$ \_\_\_\_  $oz$