Converting Measurements within the Customary System

The units of length in the customary system are inch, foot, yard, and mile. The table shows the relationships among these units.

Customary Units of Length
1 mile (mi) = 5,280 feet
1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 feet

- To convert from larger units to smaller units, multiply.
- To convert from smaller units to larger units, divide.

Larger Units	→	Smaller Units

Smaller Units	→	Larger Units

7 ft = 7 × 12 = 84 in.

4 mi = 4 × 5,280 = 21,120 ft

There will be a greater number of smaller units than larger units.

108 in. = 108 ÷ 12 = 9 ft

15 ft = 15 ÷ 3 = 5 yd

There will be fewer larger units than smaller units.

EXAMPLES Convert Customary Units of Length

Complete each sentence.

1 8 yd = ▮ ft

8 yd = (8 × 3) ft

= 24 ft

2 144 in. = ▮ ft

144 in. = (144 ÷ 12) ft

= 12 ft

3 7.5 mi = ▮ ft

7.5 mi = (7.5 × 5,280) ft

= 39,600 ft

The units of weight in the customary system are ounce, pound, and ton. The table at the right shows the relationships among these units. As with units of length, to convert from larger units to smaller units, multiply. To convert from smaller units to larger units, divide.

Customary Units of Weight
1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 pounds

EXAMPLES Convert Customary Units of Weight

Complete each sentence.

4 12,400 lb = ▮ T

12,400 lb = 12,400 ÷ 2,000 or 6.2 T

5 92 oz = ▮ lb

92 oz = 92 ÷ 16 or 5.75 lb

Capacity is the amount of liquid or dry substance a container can hold. Customary units of capacity are fluid ounces, cup, pint, quart, and gallon. The relationships among these units are shown in the table.

Customary Units of Capacity
1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

EXAMPLES Convert Customary Units of Capacity

Complete each sentence.

6 64 fl oz = ▮ c

64 fl oz = 64 ÷ 8 or 8 c

7 4.4 gal = ▮ qt

4.4 gal = 4.4 × 4 or 17.6 qt

Convert Customary Units Using Two Steps

8 **12 pt = ▉ gal**

12 pt = (12 ÷ 2) qt	First, change pints to quarts.	:	6 qt = (6 ÷ 4) gal	Then, change quarts to gallons.
= 6		:	= 1.5 gal	

So, 12 pints = 1.5 gallons.

Units of time can also be converted. The table shows the relationships between these units.

Units of Time		
60 seconds (s) = 1 minute (min)	7 days = 1 week
60 minutes = 1 hour (h)	52 weeks = 1 year
24 hours = 1 day	365 days = 1 year

Convert Units of Time

Complete each sentence.

9 **84 h = ▉ days**

84 h = 84 ÷ 24 or 3.5 days

10 **5 weeks = ▉ days**

5 weeks = 5 × 7 or 35 days

Adding Mixed Measures

11 **Find the sum of 4 feet 7 inches and 5 feet 10 inches. Simplify.**

4 ft 7 in.	Line up like units and add.
+ 5 ft 10 in.	
9 ft **17 in.** = 9 ft + **(12 in. + 5 in.)**	Separate 17 in. into 12 in. and 5 in.
= 10 ft + 5 in.	Replace 12 in. with 1 ft and add like units.