

Unit 48 Measuring Distance, Weight, and Time

1. Important measures to remember:

<p>Distance Measurements</p> <p>12 inches (in.) = 1 foot (ft.) 3 feet = 1 yard (yd.) 5,280 feet = 1 mile (mi.) 1,760 yards = 1 mile</p> <p>Surface Measurements</p> <p>144 square inches = 1 square foot 9 square feet = 1 square yard</p> <p>Weight Measurements</p> <p>16 ounces = 1 pound (lb.) 2,000 pounds = 1 ton (t.)</p>	<p>Time</p> <p>1 minute = 60 seconds (sec.) 1 hour (hr.) = 60 minutes (min.) 1 day = 24 hours 1 week (wk.) = 7 days 1 year (yr.) = 52 weeks = 365 days = 12 months (mo.)</p> <p>Liquid Measurements</p> <p>2 cups (c.) = 1 pint (pt.) 2 pints = 1 quart (qt.) 4 quarts = 1 gallon (gal.) 32 fluid ounces (oz.) = 1 quart</p>
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2. Examples:

Addition

$$\begin{array}{r} 3 \text{ ft. } 6 \text{ in.} \\ + 4 \text{ ft. } 8 \text{ in.} \\ \hline 7 \text{ ft. } 14 \text{ in. or } 8 \text{ ft. } 2 \text{ in.} \end{array}$$

Subtraction

$$\begin{array}{r} 23 \quad 16 + 9 = 25 \\ \cancel{24} \text{ lb. } \quad \cancel{9} \text{ oz.} \\ - 8 \text{ lb. } 12 \text{ oz.} \\ \hline 15 \text{ lb. } 13 \text{ oz.} \end{array}$$

Note: Borrowing
 1 lb. means
 borrowing 16 oz.

Multiplication

$$\begin{array}{r} 3 \text{ qt. } 1 \text{ pt.} \\ \times 3 \\ \hline 9 \text{ qt. } 3 \text{ pt. or } 2 \text{ gal. } 1 \text{ qt. } 3 \text{ pt.} \\ \text{or } 2 \text{ gal. } 2 \text{ qt. } 1 \text{ pt.} \end{array}$$

Division

$$\begin{array}{r} 2 \text{ hr. } 20 \text{ min.} \\ 4 \overline{) 9 \text{ hr. } 20 \text{ min.}} \\ \underline{8 \text{ hr.}} \\ 1 \text{ hr.} \rightarrow 60 \text{ min.} \\ \underline{80 \text{ min.}} \\ 80 \text{ min.} \end{array}$$

Measuring the amount of time between 10:30 a.m. and 3:45 p.m. requires 3 steps.

$$\begin{array}{r} 3:45 \text{ p.m.} \\ - 12:00 \text{ noon} \\ \hline 3 \text{ hr. } 45 \text{ min.} \end{array}$$

$$\begin{array}{r} 12:00 \text{ noon} \\ - 10:30 \text{ a.m.} \\ \hline 1 \text{ hr. } 30 \text{ min.} \end{array}$$

$$\begin{array}{r} 3 \text{ hr. } 45 \text{ min.} \\ + 1 \text{ hr. } 30 \text{ min.} \\ \hline 4 \text{ hr. } 75 \text{ min.} \rightarrow 5 \text{ hr. } 15 \text{ min.} \end{array}$$

3. A proportion may be used to change from one measure to another measure.

A. Remember that each fraction of a proportion has the same label.

B. Examples:

Change 2.5 miles to feet.

$$\begin{array}{l} \frac{2.5 \text{ mi.}}{1 \text{ mi.}} = \frac{x \text{ ft.}}{5,280 \text{ ft.}} \\ 2.5(5,280) = x \\ x = 13,200 \text{ ft.} \end{array}$$

Change 14 quarts to gallons.

$$\begin{array}{l} \frac{14 \text{ qt.}}{4 \text{ qt.}} = \frac{x \text{ gal.}}{1 \text{ gal.}} \\ 14(1) = 4x \\ x = 3.5 \text{ gal.} \end{array}$$

Change 9,000 pounds to tons.

$$\begin{array}{l} \frac{9,000 \text{ lb.}}{2,000 \text{ lb.}} = \frac{x \text{ ton}}{1 \text{ ton}} \\ 9,000(1) = 2,000x \\ x = 4.5 \text{ tons} \end{array}$$