# Unit Conversions Practice

- There are 5280 feet in one mile
- There are 0.034 ounces in one milliliter
- There are 0.454 kg in one pound
- There are 1.6 kilometers in one mile
- There are 73 gallons in 2 barrels
- There are 1.05 quarts in one liter
- There are 4 quarts in one gallon

*Do the following one-step unit conversions:*

1) Convert 23 miles to feet.

① Plan

1 mile = 5280 ft

$$\frac{23 \text{ miles}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} = 121{,}440 \text{ ft}$$

2) Convert 120 lbs to kilograms.

.454 kg = 1 lb

$$\frac{120 \text{ lbs}}{1} \cdot \frac{.454 \text{ kg}}{1 \text{ lb}} = 54.48 \text{ kg}$$

3) Convert 451 mL to ounces.

.0340 oz = 1 mL

$$\frac{451 \text{ mL}}{1} \cdot \frac{.0340 \text{ oz}}{1 \text{ mL}} = 15.3340 \text{ oz}$$

4) Convert 6 feet to miles.

5280 ft = 1 mile

$$\frac{6 \text{ ft}}{1} \cdot \frac{1 \text{ mile}}{5280 \text{ ft}} = \frac{6 \text{ miles}}{5280} \approx .00114 \text{ m}$$

5) Convert 4 quarts to liters.

1 Liter = 1.05 quarts

$$\frac{4 \text{ quarts}}{1} \cdot \frac{1 \text{ Liter}}{1.05 \text{ quarts}} = \frac{4 \text{ L}}{1.05} \approx 3.81 \text{ L}$$

6) Convert 0.045 barrels to gallons.

73 gal = 2 barrels

$$\frac{.045 \text{ barrels}}{1} \cdot \frac{73 \text{ gal}}{2 \text{ barrels}} = \frac{3.285}{2} \text{ gal}$$

$$= 1.6425 \text{ gal}$$

*Do the following multi-step unit conversions:*

7) Convert 75 minutes to days.

① Plan
min → hours → days

$$\frac{75\ \text{min}}{1} \cdot \frac{1\ \text{hr}}{60\ \text{min}} \cdot \frac{1\ \text{day}}{24\ \text{hr}}$$

$$= \frac{75}{1440}\ \text{day} \simeq \boxed{.052\ \text{days}}$$

8) Convert 46 inches to miles (there are 12 inches in one foot).

① Plan
inches → ft → miles

$$= \frac{46\ \text{inches}}{1} \cdot \frac{1\ \text{ft}}{12\ \text{in}} \cdot \frac{1\ \text{mile}}{5280\ \text{ft}}$$

$$= \frac{46\ \text{miles}}{63360}\ \text{miles} \simeq \boxed{.0007\ \text{miles}}$$

9) Convert 65 ounces to liters. (There are 1000 mL in one liter).

① Plan
Oz → mL → Liters

$$\frac{65\ \text{oz}}{1} \cdot \frac{1\ \text{mL}}{.034\ \text{oz}} \cdot \frac{1\ \text{Liter}}{1000\ \text{mL}} = \frac{65\ \text{L}}{34}$$

$$\simeq \boxed{1.91\ \text{L}}$$

10) Convert one million seconds to years.

① Plan
sec → min → hour → day → year

$$\frac{1{,}000{,}000\ \text{sec}}{1} \cdot \frac{1\ \text{min}}{60\ \text{sec}} \cdot \frac{1\ \text{hr}}{60\ \text{min}} \cdot \frac{1\ \text{day}}{24\ \text{hr}} \cdot \frac{1\ \text{yr}}{365\ \text{day}} = \boxed{\frac{1{,}000{,}000}{31536000}\ \text{yr}}$$

11) Convert 12 liters to barrels.

① Plan. Liters → quarts → gallons → barrels

$$\frac{12\ \text{L}}{1} \cdot \frac{1.05\ \text{quart}}{1\ \text{L}} \cdot \frac{1\ \text{gal}}{4\ \text{quart}} \cdot \frac{2\ \text{barrels}}{73\ \text{gal}} = \frac{25.2\ \text{barrels}}{292}$$

12) Find your age in seconds. (14 yrs old)

① Plan
yr → days → hours → min → sec

$$\frac{14\ \text{yrs}}{1} \cdot \frac{365\ \text{days}}{1\ \text{yrs}} \cdot \frac{24\ \text{hr}}{1\ \text{day}} \cdot \frac{60\ \text{min}}{1\ \text{hr}} \cdot \frac{60\ \text{sec}}{1\ \text{min}}$$

$$= \boxed{441504000\ \text{seconds}}$$