

Unit Conversions Classwork

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

Do the following one-step unit conversions:

- 1) Convert 23 miles to feet.

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

- 2) Convert 120 lbs to kilograms.

$$\frac{120 \text{ lbs}}{1} \cdot \frac{0.454 \text{ kg}}{1 \text{ lbs}} = \boxed{54.48 \text{ kg}}$$

- 3) Convert 451 mL to ounces.

$$\frac{451 \text{ mL}}{1} \cdot \frac{0.034 \text{ oz}}{1 \text{ mL}} = \boxed{15.334 \text{ oz}}$$

- 4) Convert 6 feet to miles.

$$\frac{6 \text{ ft}}{1} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} = \frac{6 \text{ mi}}{5280} = \boxed{0.001 \text{ miles}}$$

- 5) Convert 4 quarts to liters.

$$\frac{4 \text{ qts}}{1} \cdot \frac{1 \text{ L}}{1.05 \text{ qts}} = \frac{4 \text{ L}}{1.05} = \boxed{3.8 \text{ L}}$$

- 6) Convert .045 barrels to gallons.

$$\frac{0.045 \text{ bbl}}{1} \cdot \frac{73 \text{ gal}}{2 \text{ bbl}} = \frac{3.285 \text{ gal}}{2} = \boxed{1.6425 \text{ gal}}$$

Do the following multi-step unit conversions:

- 7) Convert 75 minutes to days.

$$\frac{75 \cancel{\text{min}}}{1} \cdot \frac{1 \text{ hr}}{60 \cancel{\text{min}}} \cdot \frac{1 \text{ (days)}}{24 \text{ hr}} = \frac{75 \text{ days}}{1440} = \boxed{0.05 \text{ day}}$$

- 8) Convert 46 inches to miles

$$\frac{46 \cancel{\text{in}}}{1} \cdot \frac{1 \cancel{\text{ft}}}{12 \cancel{\text{in}}} \cdot \frac{1 \text{ (mi)}}{5280 \cancel{\text{ft}}} = \frac{46 \text{ mi}}{63360} = 7.26 \times 10^{-4}$$

$$\boxed{0.000726 \text{ mi}}$$

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

$$\frac{65 \cancel{\text{oz}}}{1} \cdot \frac{1 \cancel{\text{mL}}}{0.034 \cancel{\text{oz}}} \cdot \frac{1 \text{ (L)}}{1000 \cancel{\text{mL}}} = \frac{65 \text{ L}}{34} = \boxed{1.91 \text{ L}}$$

- 10) Convert 1 million seconds to years.

$$\frac{1,000,000 \cancel{\text{sec}}}{1} \cdot \frac{1 \cancel{\text{min}}}{60 \cancel{\text{sec}}} \cdot \frac{1 \cancel{\text{hr}}}{60 \cancel{\text{min}}} \cdot \frac{1 \text{ (day)}}{24 \cancel{\text{hr}}} \cdot \frac{1 \text{ yr}}{365 \text{ day}} \cdot \frac{1,000,000 \text{ yrs}}{3,536,000} = \boxed{0.032 \text{ yrs}}$$

- 11) Convert 12 liters to barrels.

$$\frac{12 \cancel{\text{L}}}{1} \cdot \frac{1.05 \cancel{\text{qt}}}{1 \cancel{\text{L}}} \cdot \frac{1 \cancel{\text{g}}}{4 \cancel{\text{qt}}} \cdot \frac{2 \text{ (b)}}{73 \cancel{\text{g}}} = \frac{25.2 \text{ b}}{292} = \boxed{0.087 \text{ b}}$$

- 12) Find your age in seconds.

your age here

$$\frac{\boxed{} \cancel{\text{yrs}}}{1} \cdot \frac{365 \cancel{\text{days}}}{1 \cancel{\text{yrs}}} \cdot \frac{24 \cancel{\text{hr}}}{1 \cancel{\text{days}}} \cdot \frac{60 \cancel{\text{min}}}{1 \cancel{\text{hr}}} \cdot \frac{60 \text{ (sec)}}{1 \cancel{\text{min}}} = \frac{\text{sec}}{1}$$

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