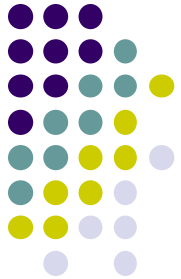


- Complete the following metric conversions:
  - 28.0 cm to mm
  - 1000. m to km
  - 9.28 cm to mm
  - 10.68 g to mg
  - 6.8×10^4 mg to kg
  - 8.54 g to kg
  - 25.0 mL to L
  - 22.4 L to μL

$$\frac{28.0\ \text{cm}}{}\times\frac{10^{-2}\ \text{m}}{1\ \text{cm}}=2.80\times10^{-1}\ \text{m}=0.280\ \text{m}$$

$$\frac{1000.\ \text{m}}{}\times\frac{1\ \text{km}}{10^{3}\ \text{m}}=1000\times10^{-3}\ \text{km}=1.000\ \text{km}$$

$$\frac{9.28\ \text{cm}}{}\times\frac{10^{-2}\ \text{m}}{1\ \text{cm}}\times\frac{1\ \text{mm}}{10^{-3}\ \text{m}}=9.28\times10^{1}\ \text{mm}=92.8\ \text{mm}$$

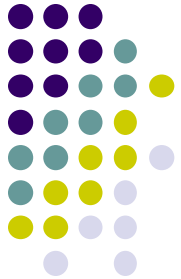
$$\frac{10.68\ \text{g}}{}\times\frac{1\ \text{mg}}{10^{-3}\ \text{g}}=1.068\times10^{4}\ \text{mg}=10680\ \text{mg}$$

$$\frac{6.8\times10^{4}\ mg}{}\times\frac{10^{-3}\ g}{1\ mg}\times\frac{1\ kg}{10^{3}\ g}=6.8\times10^{-2}\ kg\ =\ 0.068\ kg$$

$$\frac{8.54\ g}{}\times\frac{1\ kg}{10^{3}\ g}=8.54\times10^{-3}\ kg\ =\ 0.00854\ kg$$

$$\frac{25.0\ mL}{}\times\frac{10^{-3}\ L}{1\ mL}=25.0\times10^{-3}\ L\ =\ 0.0250\ L$$

$$\frac{22.4\ L}{}\times\frac{1\ \mu L}{10^{-6}\ \mathrm{L}}=22.4\times10^{6}\ \mu L\ =\ 2.24\times10^{7}\ \mu L$$



- Complete the following American/metric conversions:
  - 42.2 in. to cm
  - 0.64 m to in.
  - 2.00 in^2 to cm^2
  - 42.8 kg to lb
  - 3.5 qt to mL
  - 20.0 L to gal

$$\frac{42.2\ \text{in}}{} \times \frac{2.54\ \text{cm}}{1\ \text{in}} = 107\ \text{cm}$$

$$\frac{0.64\ \text{m}}{} \times \frac{1\ \text{cm}}{10^{-2}\ \text{m}} \times \frac{1\ \text{in}}{2.54\ \text{cm}} = 25\ \text{in}$$

$$\frac{2.00\ \text{in}^2}{} \times \frac{2.54^2\ \text{cm}^2}{1^2\ \text{in}^2} = 12.9\ \text{cm}^2$$

$$\frac{42.8\ \text{kg}}{} \times \frac{2.20\ \text{lb}}{1\ \text{kg}} = 94.2\ \text{lb}$$

$$\frac{3.5\ \text{qt}}{} \times \frac{0.946\ \text{L}}{1\ \text{qt}} \times \frac{1\ \text{mL}}{10^{-3}\ \text{L}} = 3300\ \text{mL}$$

$$\frac{20.0\ \text{L}}{} \times \frac{1\ \text{gal}}{3.785\ \text{L}} = 5.28\ \text{gal}$$

- After working out at the gym on a stationary bike for 45 minutes, the distance gauge indicates you have traveled 15.2 miles. What is your rate in km/hr?

$$\frac{15.2 \text{ miles}}{45 \text{ minutes}} \times \frac{60 \text{ minutes}}{1 \text{ hour}} \times \frac{1.609 \text{ km}}{1 \text{ mile}} = 33 \frac{\text{km}}{\text{hr}}$$

- A competitive high school swimmer takes 52 seconds to swim 100 yards. What is his rate in m/min?

$$\frac{100.\ \text{yards}}{52\ \text{s}} \times \frac{60\ \text{s}}{1\ \text{minute}} \times \frac{3\ \text{ft}}{1\ \text{yd}} \times \frac{1\ \text{m}}{3.2808\ \text{ft}} = 105.5\ \frac{\text{m}}{\text{min}}$$

$$= 110\ \frac{\text{m}}{\text{min}}$$

- Assuming there are 20 drops in 1.0 mL, how many drops are in 1.0 gallon?

$$\frac{20.\ \text{drops}}{1.0\ \text{mL}} \times \frac{10^3\ \text{mL}}{1\ \text{L}} \times \frac{1\ \text{L}}{0.2642\ \text{gal}} = 76000\ \text{drops}$$

- The height of a horse in measured in hands, where 1 hand is 4 inches. How many meters is a horse that is 14.2 hands?

$$\frac{14.2\ hands}{1} \times \frac{4\ inches}{1\ hand} \times \frac{1\ foot}{12\ inches} \times \frac{1\ meter}{3.2808\ feet} = 1.44\ m$$