

Length	Volume	Energy
100 cm = 1 m	1 gal = 4 qt	1000 cal = 1 kcal = 1 Cal
1000 mm = 1 m	1 qt = 2 pints	1 cal = 4.18 J
1 km = 1000 m	1 qt = 32 ounces	1000 J = 1 kJ
1 ft = 12 in	1 gal = 3.78 L	
1 mi = 5280 ft	1000 mL = 1 L	
2.54 cm = 1 in	1 mL = 1 cm ³ = 1 cc	

1. Following the rules for significant figures calculations, report the following answers in scientific notation and round off to three significant figures. (4 pts)

$$\frac{3.4872 + 2.140}{16.839} = \mathbf{3.34 \times 10^{-1}} \quad (3.210 + 81.24) \times 4.76 = \mathbf{4.02 \times 10^2}$$

2. How many centimeters are in 7.25 inches? (1 pt)

$$7.25 \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = \mathbf{18.4 \text{ cm}}$$

3. How many mm are in 3 ft? (2 pts)

$$3 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{10 \text{ mm}}{1 \text{ cm}} = \mathbf{914 \text{ mm}}$$

4. If an object has a mass of 24.78 grams and has a volume of 27.00 mL, what is its density? (3 pts)

$$d = \frac{24.78 \text{ g}}{27.00 \text{ mL}} = \mathbf{0.92 \text{ g/mL}}$$