

Metric Conversions

1. Perform the conversions by multiplying by the appropriate conversion factor. Round all answers to the nearest thousandths.

a) Convert 100 dm to cm.

b) How many microliters are in 0.078 milliliters?

c) How many cc (cm^3) are in 13.4 deciliters?

d) How many cc (cm^3) are in 1 Liter?

e) How many gallons are in 30 Liters?

f) How many meters are in 1 mile?

g) How many inches are in 1 meter?

h) How many kg are in 1 Ton?

i) How many in^3 are in 5.0 Liters?

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a) Convert 100 dm to cm.

$$\left(\frac{100 \text{ dm}}{1}\right) \left(\frac{1 \text{ m}}{10 \text{ dm}}\right) \left(\frac{100 \text{ cm}}{1 \text{ m}}\right) = \boxed{1,000.000 \text{ cm}}$$

b) How many microliters are in 0.078 milliliters?

$$\left(\frac{0.078 \text{ mL}}{1}\right) \left(\frac{1 \text{ L}}{1,000 \text{ mL}}\right) \left(\frac{1,000,000 \text{ }\mu\text{L}}{1 \text{ L}}\right) = \boxed{78.000 \text{ }\mu\text{L}}$$

c) How many cc (cm^3) are in 13.4 deciliters?

$$\left(\frac{13.4 \text{ dL}}{1}\right) \left(\frac{1 \text{ L}}{10 \text{ dL}}\right) \left(\frac{1,000 \text{ mL}}{1 \text{ L}}\right) \left(\frac{1 \text{ cc}}{1 \text{ mL}}\right) = \boxed{1,340.000 \text{ cc}}$$

d) How many cc (cm^3) are in 1 Liter?

$$\left(\frac{1 \text{ L}}{1}\right) \left(\frac{1,000 \text{ mL}}{1 \text{ L}}\right) \left(\frac{1 \text{ cc}}{1 \text{ mL}}\right) = \boxed{1,000.000 \text{ cc}}$$

e) How many gallons are in 30 Liters?

$$\left(\frac{30\text{L}}{1}\right)\left(\frac{1.06\text{qt}}{1\text{L}}\right)\left(\frac{1\text{gal}}{4\text{qt}}\right) = \boxed{7.950\text{ gal}}$$

f) How many meters are in 1 mile?

$$\left(\frac{1\text{ mi}}{1}\right)\left(\frac{5,280\text{ft}}{1\text{mi}}\right)\left(\frac{12\text{in}}{1\text{ft}}\right)\left(\frac{2.54\text{cm}}{1\text{in}}\right)\left(\frac{1\text{m}}{100\text{cm}}\right) = \boxed{1609.344\text{ m}}$$

g) How many inches are in 1 meter?

$$\left(\frac{1\text{m}}{1}\right)\left(\frac{100\text{cm}}{1\text{m}}\right)\left(\frac{1\text{in}}{2.54\text{cm}}\right) = \boxed{39.370\text{ in}}$$

h) How many kg are in 1 Ton?

$$\left(\frac{1\text{T}}{1}\right)\left(\frac{2,000\text{lb}}{1\text{T}}\right)\left(\frac{1\text{kg}}{2.20\text{lb}}\right) = \boxed{909.091\text{ kg}}$$

i) How many in^3 are in 5.0 Liters?

$$\left(\frac{5.0\text{L}}{1}\right)\left(\frac{1,000\text{mL}}{1\text{L}}\right)\left(\frac{1\text{cm}^3}{1\text{mL}}\right)\left(\frac{1^3\text{in}^3}{2.54^3\text{cm}^3}\right) = \boxed{305.119\text{ in}^3}$$