

Mass - the measurement of the amount of matter in an object

UNITS: grams (g)

In a lab: use a triple beam balance or some other type of scale



Density: the measurement of the amount of matter in an object (MASS) per unit of space that the object takes up (VOLUME)

$$D = \frac{m}{V}$$

UNITS:  $\text{g/cm}^3$  or  $\text{g/mL}$

What is the equation

$$D = \frac{m}{V} \text{ or } m = D \cdot V \text{ or } V = \frac{m}{D}$$





+7

$$m = 80g$$

$$V = 4cm \cdot 6cm \cdot 3cm = 72cm^3$$

$$D = ?$$

+2

$$D = \frac{m}{V} = \frac{80g}{72cm^3}$$

$$D_{\text{water}} = 1g/mL \approx 1g/cm^3$$

$$= 1.1 g/cm^3$$

+2

$$D_{\text{wood}} = 1.1 g/cm^3$$

$$1.1 g/cm^3 > 1 g/cm^3$$

SINK

$$m = 425 \text{ g}$$

$$V = 48 \text{ cm}^3$$

$$D = ?$$

$$D = \frac{m}{V}$$

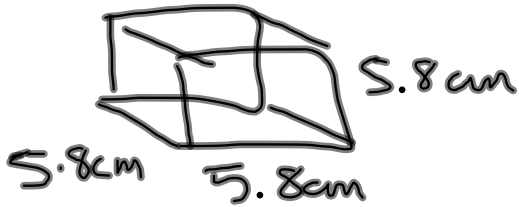
$$= \frac{425 \text{ g}}{48 \text{ cm}^3}$$

$$= \boxed{8.85 \text{ g/cm}^3}$$

$$D_{\text{gold}} = 19.3 \text{ g/cm}^3$$

$$D_{\text{copper}} = 8.86 \text{ g/cm}^3$$

$$D_{\text{bronz}} = 9.87 \text{ g/cm}^3$$



$$D = .917 \text{ g/cm}^3$$

$$V = 5.8 \text{ cm} \cdot 5.8 \text{ cm} \cdot 5.8 \text{ cm} = 195.1 \text{ cm}^3$$

$$m = D \cdot V$$

$$.917 \text{ g/cm}^3 \cdot 195.1 \text{ cm}^3 = \boxed{\sim 178 \text{ g}}$$



$$V \hat{=} 195 \text{ cm}^3$$

$$D_{\text{ice}} = .917 \text{ g/cm}^3$$

$$m = \sim 178 \text{ g} \neq m = 195 \text{ g}$$

liquid

$$V \hat{=} 195 \text{ cm}^3$$

$$D_{\text{water}} = 1 \text{ g/mL}$$



$$M = 14.5g$$
$$V = 450 \text{ cm}^3$$

$$D = \frac{M}{V} = \frac{14.5g}{450 \text{ cm}^3}$$
$$= .032g/\text{cm}^3$$

$$435.5g \div 2.5g$$
$$= 174.2 \text{ pennies}$$

175 pennies



$$M = 2.5g$$

$$\frac{450g}{450 \text{ mL}} = \frac{1g}{1 \text{ mL}}$$

$$450 - 14.5 =$$

$$435.5g$$

how much mass in pennies you need