

Target Check - Scientific Notation, Standard Notation, Significant Figures, Density, Temperature

Name: _____

Key

1. Put the following numbers into scientific notation.

- a. 6,800,000,000 6.8×10^9
 b. 0.00000450 4.50×10^{-6}
 c. 155,000 1.55×10^5

2. Put the following numbers into standard notation.

- a. 4.65×10^{-7} 0.000000465
 b. 3.8×10^5 380000
 c. 2.76×10^{-5} 0.0000276

3. Identify the number of significant figures in the following measurements.

- a. 5.00000 m 6
 b. 0.00000405 g 3
 c. 100. mL 3

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4. Complete the following calculations and keep the correct number of significant figures.

- a. 2.500 cm + 4.5000 cm + 5.000 cm 12.0000 cm
 b. 100.00 m x 2.00 m x 5.0 m $1.0 \times 10^3 \text{ m}^3$
 c. 4,000. kg - 100.00 kg 3900. kg
 d. 500.00g / 250 mL 2.0 g/mL

5. Complete the following conversions. Be sure to keep the correct number of significant figures and the correct units in your answers.

- a. How many mm are in 8.9 km? $8.9 \text{ km} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1000 \text{ mm}}{1 \text{ m}} = 8,900,000 \text{ mm}$
 b. How many g are in 5,000 kg? $5000 \text{ kg} \times \frac{1000 \text{ g}}{1 \text{ kg}} = 5,000,000 \text{ g}$
 c. How many kL are in $4.50 \times 10^8 \text{ mL}$? $4.50 \times 10^8 \text{ mL} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times \frac{1 \text{ kL}}{1000 \text{ L}} = 4.50 \times 10^2 \text{ kL}$

6. The density of a sample of cork is 0.24 g/mL. What is the mass of this sample if it has a volume of 400 mL?

$$m = 0.24 \text{ g/mL} \times 400 \text{ mL} = 96 \text{ g} \rightarrow 100 \text{ g}$$

7. The mass of a cube of iron is 600 g. What is the volume of this cube of iron (d=8.0g/mL)?

$$V = \frac{m}{d} = \frac{600 \text{ g}}{8.0 \text{ g/mL}} = 75 \text{ mL} \rightarrow 80 \text{ mL}$$

8. What is the density of a chemical that has a mass of 484 g and a volume of 325 mL?

$$d = \frac{m}{V} = \frac{484 \text{ g}}{325 \text{ mL}} = 1.49 \text{ g/mL}$$

9. Carry out the following temperature conversions.

- a. 340K to °C 66.85°C
 b. 5 °C to K 278.15K
 c. 2,500 °C to K 2773.15K
 d. 65K to °C -208.15°C