

Pyper

Answer the following questions. Show your work where requested. If you simply provide an answer without showing work, you will receive only 1 point

1) The mass of an object, 4.55×10^{-4} g, expressed in decimal notation is 0.000455 g.

TRUE OR FALSE (CIRCLE ONE)

2) The number 4,450,000.0 has 8 significant figures.

TRUE OR FALSE (CIRCLE ONE)

3) The wavelength of blue light is 0.00000045 m. Express this wavelength in scientific notation.

- A) 4.5×10^{-6} m B) 4.5×10^6 m C) 4.5×10^{-7} m D) 4.5×10^7 m
 E) 0.45×10^{-7} m

4) The correct number of significant figures in the number 0.0009080 is

- A) 3 B) 4 C) 5 D) ambiguous E) none of the above

5) Determine the answer to the following equation with correct number of significant figures:

$13.96 - 4.9102 + 71.5 =$ _____

- A) 80.5498 B) 81 C) 80.5 D) 80.55 E) none of the above

6) Which of the statements below is NOT part of the scientific method?

- A) observation and measurement
 B) formation of a hypothesis
 C) testing of a hypothesis by experimentation
 D) refinement of a hypothesis as needed
 E) All of the above steps are part of the scientific method.

7) Convert 3.50 miles to meters (1 mi = 1.609 km) Show your work below for full credit

- A) 2.18×10^3 B) 2.18×10^3 C) 5.63×10^3 D) 5.63×10^3
 E) None of the above

$$\frac{3.50 \text{ miles}}{1 \text{ mile}} \times \frac{1.609 \text{ km}}{1 \text{ km}} \times \frac{1000 \text{ m}}{1 \text{ km}} = 5631.5 \text{ m}$$

round to 3 digits

8) An object weighing 1.840×10^3 g has a volume of 1.5 L. What is the density of the object in g/cm^3 ? **Show your work below for full credit**

- A) 0.0012 B) 0.82 C) 0.0028 **D) 1.2** E) none of the above

$$D = \frac{m}{V} = \frac{1.840 \times 10^3 \text{ g}}{1500 \text{ cm}^3} =$$

$$= 1.2 \text{ g}/\text{cm}^3$$

$$V = 1.5 \text{ L} \left| \frac{1000 \text{ cm}^3}{1 \text{ L}} \right. = 1500 \text{ cm}^3$$

Note: $1 \text{ L} = 1000 \text{ cm}^3$

9) A plastic block has dimensions of 2.2 cm \times 3.0 cm \times 1.5 cm and a mass of 12.4 grams. Will the block float in water and why? (Density of water = 1.00 g/mL) **Show your work below for full credit**

- A) Yes, because the density of the block is 1.3 g/mL which is less than the density of water.
B) Yes, because the density of the block is 0.80 g/mL which is less than the density of water.
~~C) No, because the density of the block is 1.3 g/mL which is greater than the density of water.~~
D) No, because the density of the block is 0.80 g/mL which is greater than the density of water.
E) none of the above

$$D = \frac{m}{V} = \frac{12.4 \text{ g}}{(2.2 \text{ cm})(3.0 \text{ cm})(1.5 \text{ cm})} = \frac{12.4 \text{ g}}{9.9 \text{ cm}^3} = 1.2525 \text{ g}/\text{cm}^3$$

Round to 2 digits

$$1.3 \text{ g}/\text{cm}^3$$

10) Convert 241 mm to cm? **Show your work below for full credit**

- A) 2.41 **B) 24.1** C) 241 D) 0.241 E) 0.0241

$$\frac{241 \text{ mm}}{10 \text{ mm}} \left| \frac{1 \text{ cm}}{10 \text{ mm}} \right. = 24.1 \text{ cm}$$