

40

Name: CALVIN
Date:
Hour:

Chemistry ~ Ch. 3 Quiz

Significant Digits

Indicate the number of significant digits in the following:

- 1) 234 meters 3
- 2) 400.0 Liters 4
- 3) 1.45×10^5 grams 3
- 4) 0.000007 feet 1
- 5) 2009 gallons 4
- 6) 150,000 kilometers 2
- 7) 30 tons 1
- 8) 0.0100 centimeters 3
- 9) 15 doorknobs ∞ (infinite)
- 10) 0.00450 ounces 3
- 11) 3.650 millimeters 4
- 12) 2,000,200 seconds 5

Round the following numbers to the indicated # of significant digits:

- 13) 1234.67 m \rightarrow 5 sig digs 1234.7 m
- 14) 0.996 L \rightarrow 1 sig dig 1 L
- 15) 1555 g \rightarrow 2 sig digs 1600 g
- 16) 1.434×10^7 cg \rightarrow 3 sig digs 1.43×10^7 cg

Density - **MUST SHOW WORK!! UNITS!! SIG DIGS!!

17) Find the mass of an object having a density of 5.17 g/mL and a volume of 36.4 mL.

3pts

$$M = ?$$

$$D = 5.17 \text{ g/mL}$$

$$V = 36.4 \text{ mL}$$

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

$$M = D \cdot V = (5.17 \text{ g/mL})(36.4 \text{ mL}) = \boxed{188 \text{ g}}$$

18) A sample has a density of 2.95 g/cm³, and a mass of 0.0516 pounds. Find it's volume. (HINT: use factor label FIRST ~ 1 lb = 454 grams)

3pts

$$D = 2.95 \text{ g/cm}^3$$

$$M = \frac{0.0516 \text{ lb}}{1 \text{ lb}} \cdot \frac{454 \text{ g}}{1 \text{ lb}} = 23.4 \text{ g}$$

$$V = ?$$

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

$$V = \frac{M}{D} = \frac{(23.4 \text{ g})}{(2.95 \text{ g/cm}^3)} = \boxed{7.93 \text{ cm}^3}$$

Scientific notation

19) Put INTO scientific notation: 223

2.23×10^2

20) Take OUT of scientific notation: 1.2×10^{-3}

0.0012

1pt

1pt

1pt

Factor-Label: SHOW WORK/UNITS!!

21) How many gallons per flush if 4.00 L are used for each flush? (1 gal = 3.79 L)

3pts

$$\frac{4.00 \cancel{\text{L}}}{3.79 \cancel{\text{L}}} \times 1 \text{ gal} = 1.06 \text{ gal}$$

22) 3.5 feet → inches

$$\frac{3.5 \cancel{\text{ft}}}{1 \cancel{\text{ft}}} \times 12 \text{ in} = 42 \text{ in}$$

23) 17 km to yd (1 mile = 1.61 km)

$$\frac{17 \cancel{\text{km}}}{1.61 \cancel{\text{km}}} \times \frac{1 \text{ mile}}{1 \text{ mile}} \times 1760 \text{ yd} = 18,600 \text{ yd} \quad \text{OR} \quad 1.86 \times 10^4 \text{ yd}$$

24) A student working in the lab measures a sample of metal to have a volume of 34.5 mL and a mass of 122.1 g. If the accepted value for this metal is 4.26 g/mL, find the student's percent error. (HINT: find the density FIRST)

3pts

$$\frac{|V_{\text{acc}} - V_{\text{exp}}|}{V_{\text{acc}}} \times 100 = \frac{4.26 - 3.54}{4.26} \times 100 = 16.9\%$$

25) Make the following conversions. SHOW your work of dragging the decimals. BOX in your answer with UNITS!

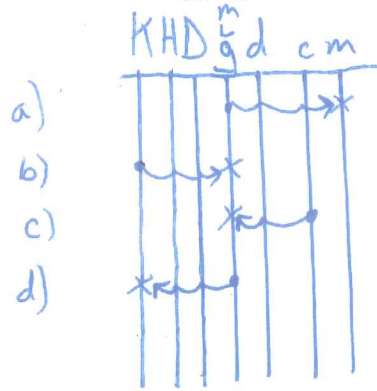
1pt

a) 322 L → mL 322,000 mL

b) 0.0064 Kg → g 6.4 g

c) 35 cm → m 0.35 m

d) 3,000 m → Km 3 km



26) TEMPERATURE

1pt

a) 100 °C → K 373 K

b) 400 K → °C 127 °C

Bonus

The speed of light is 3.00×10^8 m/s in a vacuum. Find this speed in miles per hour.

$$\frac{3.00 \times 10^8 \cancel{\text{m}}}{1,000 \cancel{\text{m}}} \times \frac{1 \text{ km}}{1.61 \cancel{\text{km}}} \times \frac{1 \text{ miles}}{1 \text{ mile}} \times \frac{60 \cancel{\text{s}}}{1 \text{ min}} \times \frac{60 \cancel{\text{min}}}{1 \text{ h}} = 6.71 \times 10^8 \text{ miles/h}$$

GO VIKINGS!!!