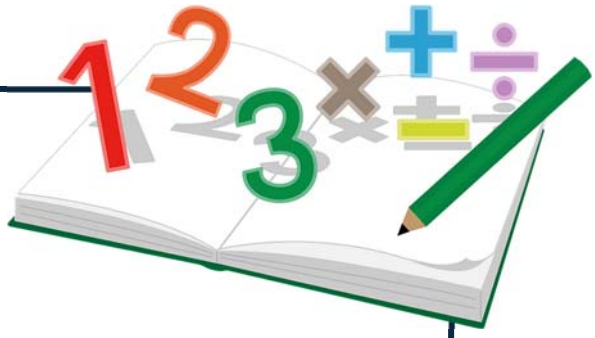
Name _____

# Significant Figures and Density Dilemmas

Every measurement has **uncertainty**. The number of **significant figures (sig figs)** shows how precise a measurement is.

When calculating density: $D = \frac{m}{V}$



**Sig Fig Rules:**

1. Non-zero digits are always significant.
2. Zeros between non-zeros are significant.
3. Leading zeros are not significant.
4. Trailing zeros are significant **only** if there's a decimal.
5. When multiplying/dividing → answer has the **same number of sig figs** as the *least precise measurement*.

1. A metal sample has a mass of **25.0 g** and a volume of **3.2 cm³**. _____
   Calculate the density with the correct number of significant figures.
2. A cube has a mass of **125 g** and a side length of **2.50 cm**. _____
   Find the density, using correct sig figs. *(Hint: find volume first.)*
3. A student measures mass = **45.67 g** and volume = **12.4 cm³**. _____
   What is the density and how many sig figs should it have?
4. A student reports the density as **2.7143 g/cm³**, but the measurements had only two significant figures each.
   How should the result be properly rounded? _____
5. Determine the number of **significant figures** in each:
   a) 0.00790 _____ b) 1.0020 _____ c) 120 _____ d) 120.0 _____
6. A piece of metal has a mass of **37 g** and volume of **4.0 cm³**. _____
   Find its density with correct sig figs.
7. The density of water is measured as **0.99865 g/mL**. Round this value to:
   a) 2 sig figs _____ b) 3 sig figs _____ c) 4 sig figs _____
8. A metal cylinder has mass = **56.70 g**, volume = **7.10 cm³**. _____
   Find density and report with proper sig figs.