SCIENCE   Name: _____

DENSITY PROBLEMS

Answer all questions and show all your work (use the GUESS method). Check your answers on back of sheet.

1. If you have a mineral sample with a volume of 4 cm³ and a mass of 20 grams, what is the density?

2. An object has a mass of 7 grams and a total volume of 18 cm³. What is the density of this object? Will it sink or float in water? Note: the density of water is 1.0 g/cm³

3. Gasoline has a density of 0.69 g/mL. What is the mass of 1000 mL of gasoline?

4. A block of dimensions 4 cm by 3 cm by 2 cm has a mass of 8.88 g. Calculate its density and use the density table (on the back of this sheet) to identify the substance.
Remember: Volume = length x width x height

5. Use the density table below to help you answer the following questions.
   a) A prospector finds a piece of metal, which has a mass of 100 g and a volume of 20 cm³. Is the metal gold?

   b) A block of aluminum and a block of silver both have the same mass. Which would have the largest volume? Explain.

   c) A bottle of water and a bottle of rubbing alcohol both have the same volume. Which would have the largest mass? Explain.

Density Table

Solids (g/cm³)		Liquids (g/mL)	
Gold	19.3	Mercury	13.6
Silver	10.5	Sea water	1.03
Aluminum	2.7	Water	1.00
Wood (birch)	0.66	Olive oil	0.92
Wood (cedar)	0.37	Rubbing alcohol	0.79
Cork	0.25	Gasoline	0.69

Answers:
   1) 5 g/cm³   2) D = 0.39 g/cm³, float (object is less dense than water)   3) m = 690 g   4) D = 0.37 g/cm³, wood is cedar
5) V = 92 mL, yes the cylinder can hold the oil.   6) a) D = 5 g/cm³. Not gold b) Aluminum is less dense and will have bigger volume c)
      Water is more dense and will have bigger mass.   7) D = 0.79 g/mL, rubbing alcohol