

Name _____ Date _____ Period _____

Graphing Homework # _____

Density is a physical property of matter that can be used to identify a material. The density of a material describes how much mass is concentrated into a particular space. The temperature and pressure can change the density of a material. Increasing pressure will increase the density while increasing temperature usually decreases density.

One way to test density is to determine if a material sinks or floats in a fluid. If a material sinks then it is more dense than the fluid. If a material floats then it is less dense. Materials that have the same density will stay suspended in a fluid. If you have numerous fluids of known density it is possible to test a wide range of densities.

Graphs of Mass and Volume can be very useful in comparing density. A graph with a steeper slope represents a more dense material. If a line for a material is beneath another line then it is less dense and will float in the fluid.

The data below represents different masses and volumes for two substances. A graph of these values can be used to compare the density.

If temperature decreases how will density change?

Describe how to test for density without a triple beam balance.

What is the density of a material that sinks in water?

Oil has a density of 0.8 grams /ml. What happens when you mix water and oil?

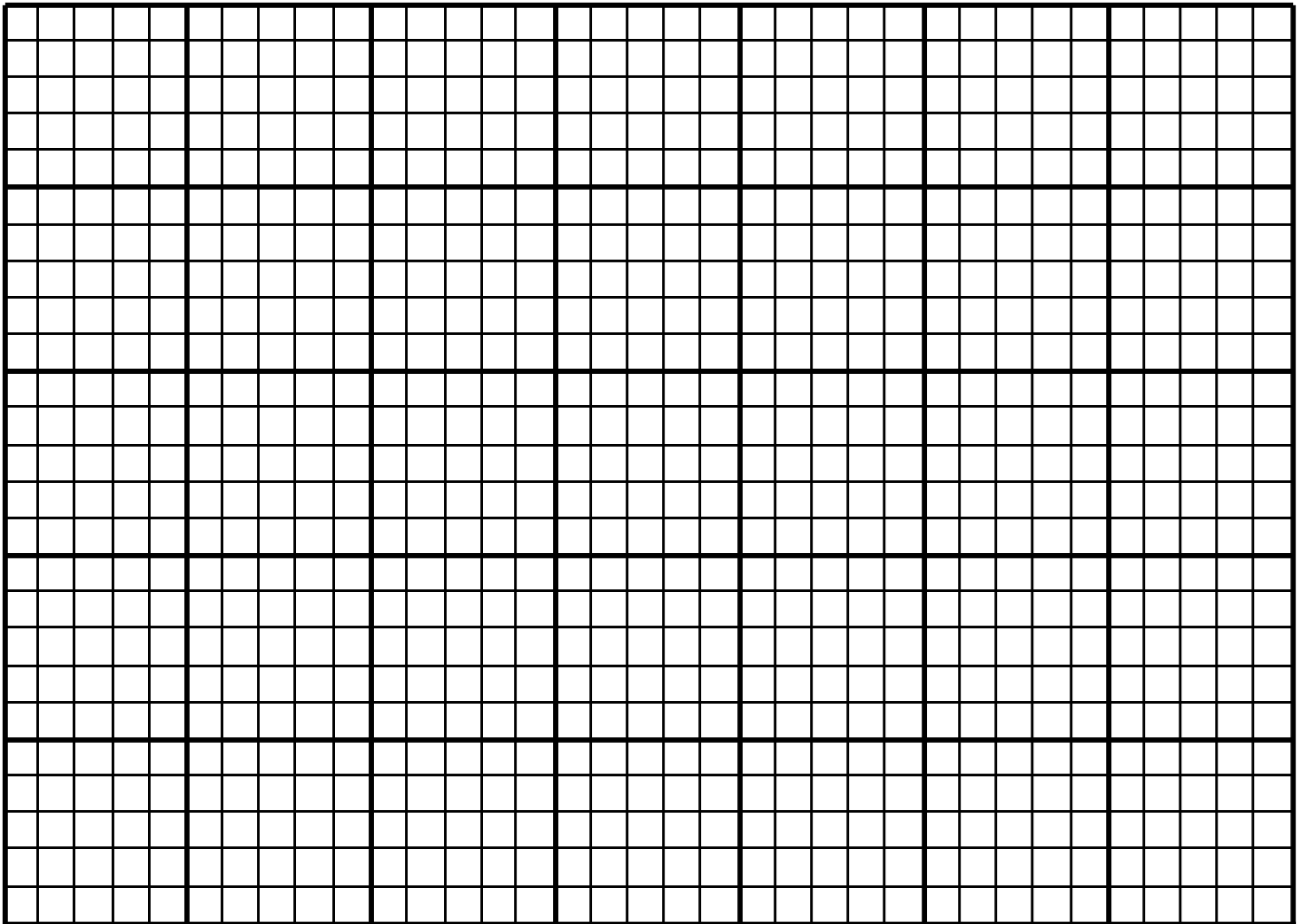
Calcite has the formula CaCO_3 . How many atoms are found in two molecules of Calcite?

Calcite	
Volume (cm ³)	Mass (grams)
0	0
20	54
40	108
70	189
100	270
120	324
140	378
Pyrite	
Volume (cm ³)	Mass (grams)
0	0
20	100
40	200
70	350
100	500
120	600
140	700

Create a line graph from the data table on the attached graph paper.

Volume should be plotted on the horizontal (x) axis and Mass should be plotted on the vertical (y) axis.

- create a uniform scale for Volume in cm³ on the x - axis (2 points)
- label the x - axis with both a label and a unit. (2 points)
- create a uniform scale for Mass in grams on the y axis. (2 points)
- label the y - axis with both a label and a unit. (2 points)
- plot all the data points on your graph (2 points)
- connect the points for each material. Label each line (2 point)
- put an appropriate title on top of your graph. (1 point)



Answer the following questions in complete sentences. (2 points each)

- 1) Calculate the density of Calcite. (show formula, substitute with units, solve with units)

- 2) Calculate the density of Pyrite. (show formula, substitute with units, solve with units)

- 3) Would either of these materials float in water? Explain your reasoning

- 4) What is the volume of a 300 gram piece of Pyrite? What is the volume of a 300 gram piece of Calcite?

- 5) If a material has a mass of 400 grams and a volume of 100 cm³ where would a line for the material appear on your graph?