

Name: _____

Period: _____

7

Chemistry

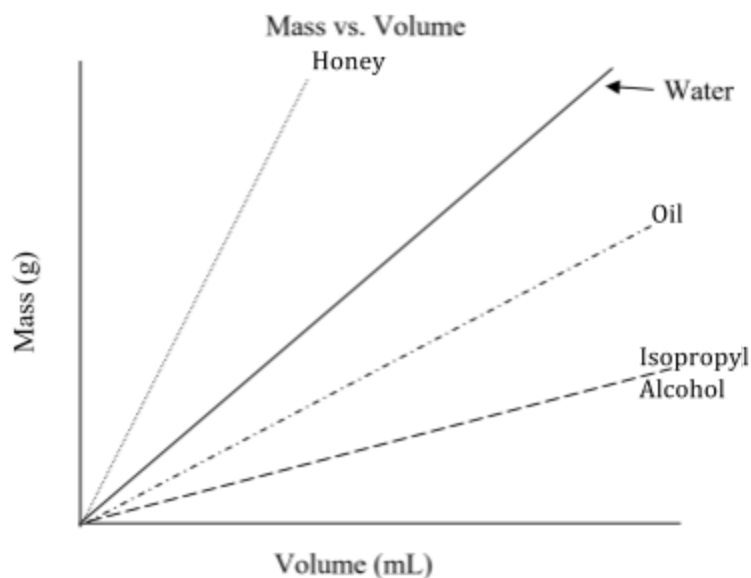
Homework: Modeling Density and Calculations

For question 1-3, use the table to the right to determine the values requested.

TABLE 1.6 Densities of Some Selected Substances at 25°C

Substance	Density (g/cm ³)
Air	0.001
Balsa wood	0.16
Ethanol	0.79
Water	1.00
Ethylene glycol	1.09
Table sugar	1.59
Table salt	2.16
Iron	7.9
Gold	19.32

- An unknown substance has a mass of 32.96 g and a volume of 41.72 cm³ (remember that 1 mL=1 cm³). What is the identity of the substance?
- A sample of iron has a mass of 10.25 g. What is the volume (in cm³) of the sample?
- What mass of ethylene glycol would have a volume of 150 mL? (remember 1 mL = 1 cm³)
- Objects that are less dense than water will float in water while objects that are denser will sink. The graph below was made to compare the masses of four items at various volumes. Put a triangle next to the line of the object(s) that will float in water and a star next to the object(s) that will sink. Explain your choices.



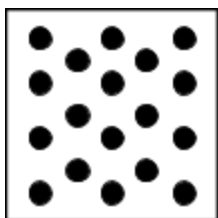
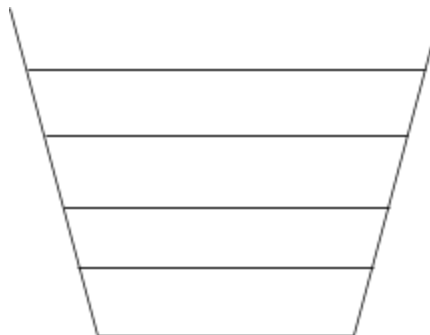
Explanation

Name: _____

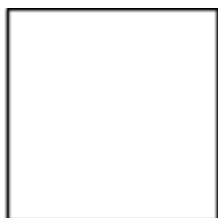
Period: _____

5. The densities for the substances in the graph above are listed in the table below. In the cup, label each layer with the correct substance. Below, draw the particle models of the substances based on density; water has been done for you. In the box below, explain your reasoning for your choices.

Substance	Density (g/mL)
Water	1.00
Oil	0.91
Honey	1.36
Isopropyl Alcohol	0.79



Water



Oil



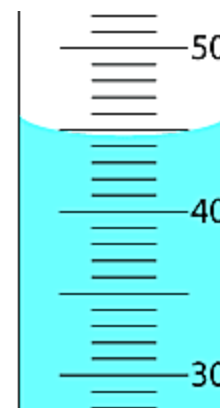
Honey



Isopropyl Alcohol

Explanation

6. To the right is a view of a graduated cylinder that has a certain volume of a liquid, ethanol ($d=0.79 \text{ g/mL}$).
- What is the volume being shown in the image? Label the certain and uncertain digits and include units in your answer.



- What would be the mass of the liquid in the cylinder?

- Using the density of water (listed on the front of the homework) and the density of ethanol, describe how they would layer in a glass. Use a drawing and a particle model to help you with your answer.



Water



Ethanol