Bell Work, Apr 14 – Apr 17 , 2014
Mass & Volume,

5% rule, slope, % error, % range,
graphical representations of density,
density calculations

Bell Work, Monday, 4/14/14 (3 questions)

1. The density of gold is 19.3 g/cm³. What is the volume, in cubic centimeters, of a sample of gold that has a mass of 715 g?

D = 19.3 g/cm³

V = ?, cm³

m = 715 g?

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

$$\mathbf{19.3\ g/cm^3 = \frac{715\ g}{V}}$$

$$\mathbf{\frac{19.3\ g/cm^3}{1} = \frac{715\ g}{V}}$$

= 37.046 cm³

= 37.0 cm³

Bell Work, Monday, 4/14/14

2. **The density of aluminum is 2.70 g/cm^3. What is the mass of a solid piece of aluminum with a volume of 1.50 cm^3?**

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

D = 2.70 g/cm^3 , V = 1.50 cm^3, m= ?

$$\frac{2.70\ g/cm^3}{1} = \frac{m}{1.50\ cm^3} \quad = 4.05\ g$$

Bell Work, Monday, 4/14/14

3. **The density of mercury is 5.427 g/(cm^3). If the density of water is 1.0 g/mL, will mercury float or sink in water?**

a. Mercury will float because the density of mercury is 0.005427 g/mL, which is less than the 1.0 g/mL density of water.

b. Mercury will float because the density of mercury is 0.05427 g/mL, which is less than the 1.0 g/mL density of water.

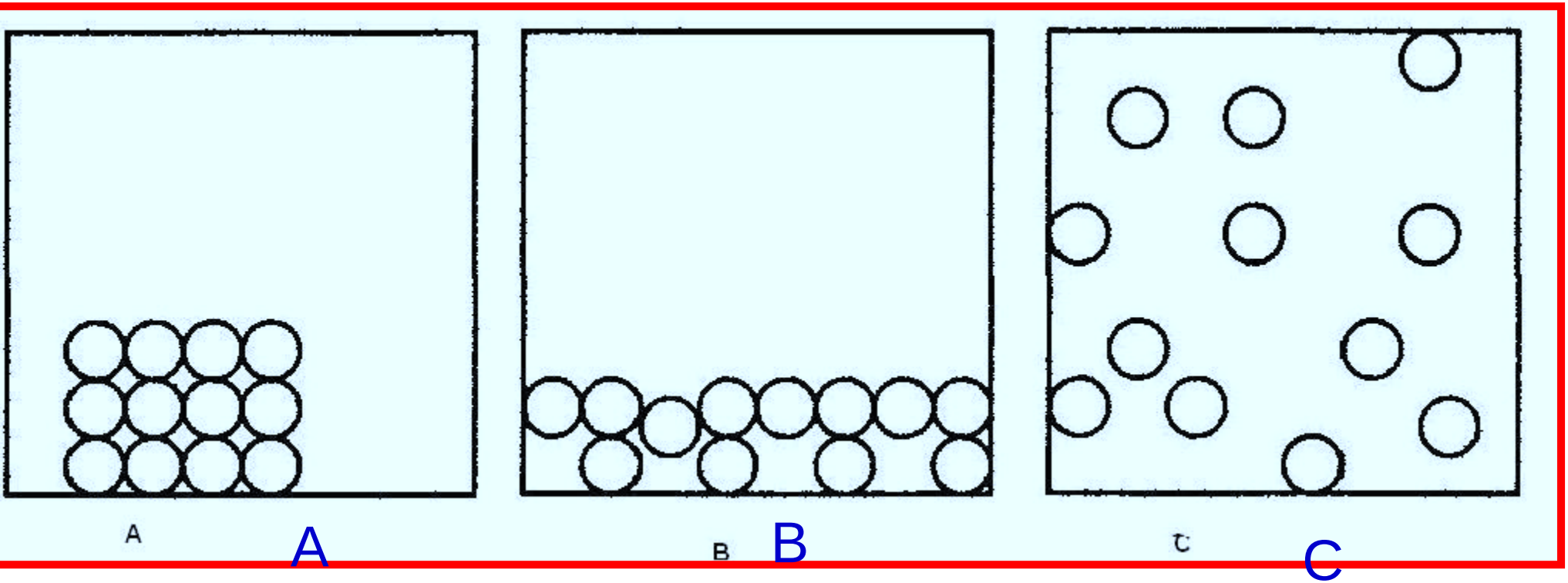
c. Mercury will sink because the density of mercury is 5.427 g/mL, which is greater than the 1.0 g/mL density of water. Less dense = float, more dense = sink

d. Mercury will sink because the density of mercury is 5,427 g/mL, which is greater than the 1.0 g/mL density of water.

Bell Work, Tuesday, 4/15/14

Draw the diagrams

1. Which diagram represents the solid state, the liquid state and the gas state of matter. Explain your answer.



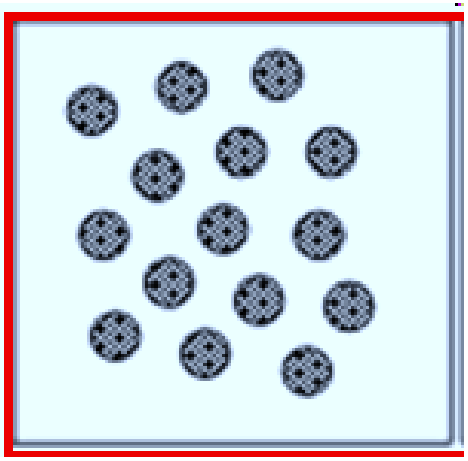
Solid - definite shape & volume.

Liquid - no definite shape but definite volume.

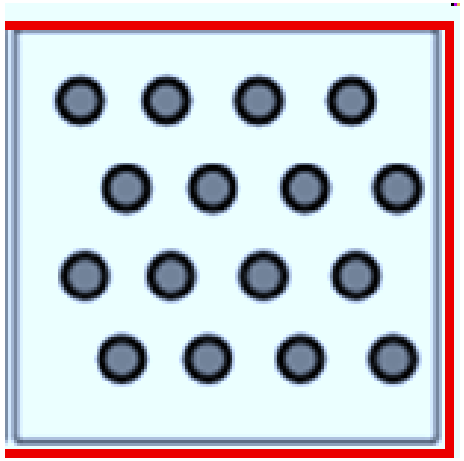
Gas - no definite shape, no definite volume.

Bell Work, Tuesday, 4/15/14

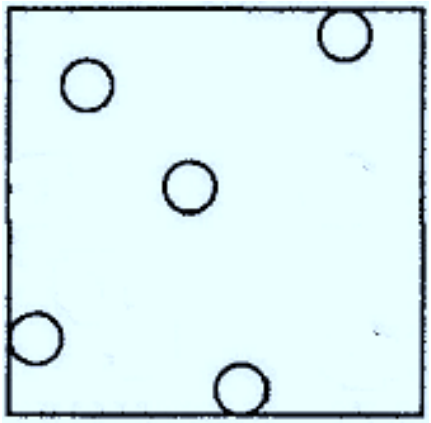
Draw the diagrams:



A



B



C

2. Identify the solid.
3. Identify the liquid.
4. Identify the gas.

2. B
3. A
4. C

Bell Work, Wednesday , Apr 16

1. See Unit 1 Worksheet 3, Question 4 c

If you put **10.0 mL of A** in one balance pan, what **mass of B** would you need in the other pan to make it balance? Explain your reasoning.

Density of A: 1.6 g/mL, Density of B: 0.5 g/mL

Density of A = 1.6 g/mL

Need to calculate the mass of 10 mL of A.

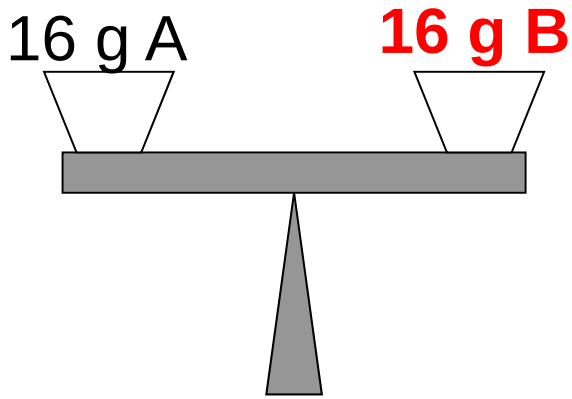
$$D = \frac{m}{V}$$

m = ?

V = 10 mL

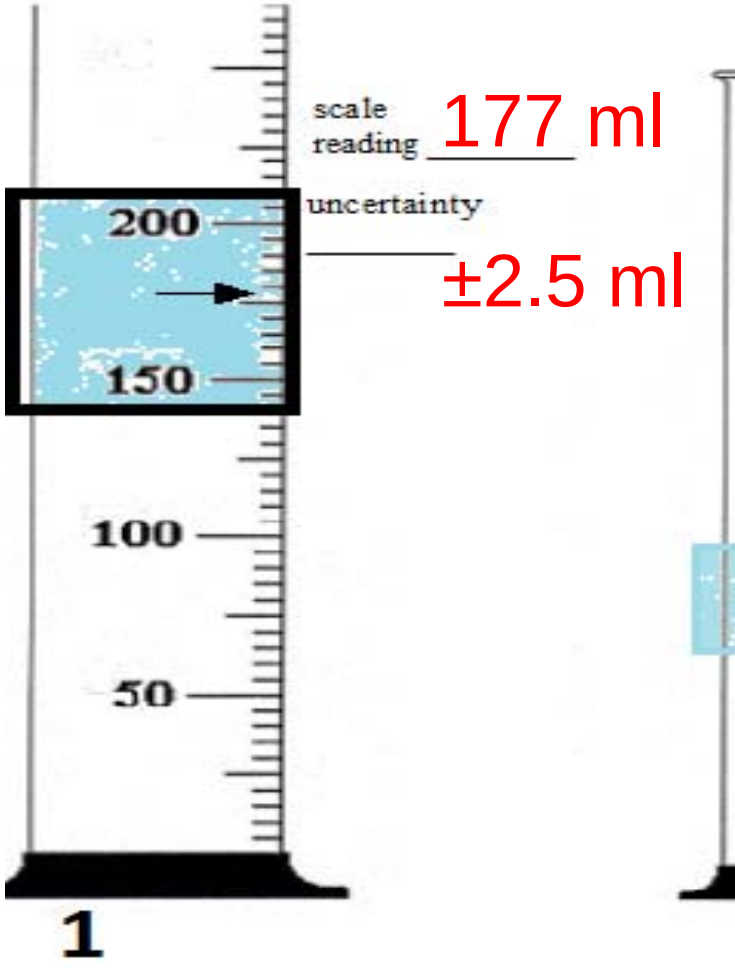
D = 1.6 g/ mL

$$1.6 g/mL = \frac{m}{10\ mL}$$ **= 16 g**



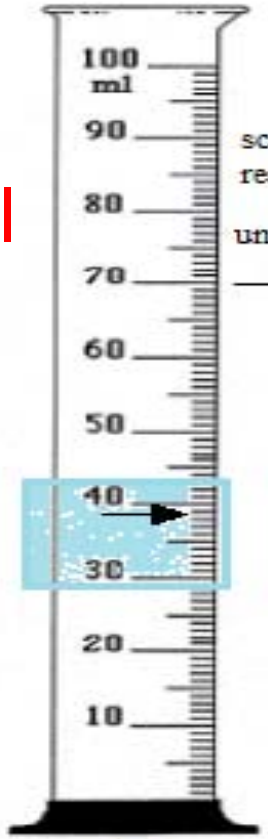
Bell Work, Thursday 4/17/14

Draw the blue section of the graduated cylinders:



scale reading 177 ml

uncertainty ±2.5 ml



scale reading 38.5 ml

uncertainty ±0.5 ml

scale reading 2.35 ml

uncertainty ±0.05 ml

1. Write down the measurements in mL and uncertainty for each graduated cylinder. Uncertainty = ± ½ the minor mark