Density Quiz Review

Define mass.

Define volume.

Define density in words and then write the mathematical formula for density.

1. Calculate the density of liquid A and liquid B. Remember to write the proper unit of density after the number.

   Liquid A  mass = 30 g  volume = 20 ml  density = ________
   Liquid B  mass = 90 g  volume = 100 ml  density = ________

2. Which of these liquids will float on water (density = 1g/ml)?

3. Explain your answer to #2.

4. Calculate the density of material A and material B. Use the densities of common materials listed below to give the most probable identity of each material.

   Material A density________ identity________ mass=63 g  volume=7 cm³
   Material B density________ identity________ mass=34 g  volume=3 cm³

   Known densities of common materials:

   aluminum(AI) = 2.7 g/cm³  brass = 8.9 g/cm³  calcium(Ca) = 1.5 g/cm³
   silver(Ag) = 10.5 g/cm³  gold (Au) = 19.3 g/cm³  tin(Sn) = 5.8 g/cm³
   iron(Fe) = 7.9 g/cm³  lead (Pb) = 11.3 g/cm³  titanium(Ti) = 4.5 g/cm³

5. Explain why the density of a cube of gold does not change when it is molded into a ring.

6. Since an ice cube will float on top of a glass of lemonade, what do you know about the density of an ice cube compared to the density of lemonade?
7. What is the volume of 193 g of gold? **Show your work!**

8. What is the mass of 1000 cm$^3$ of silver? **Show your work!**

9. Explain the science behind panning for gold, the technique the prospecting 49'ers used during the mid-1800's California gold rush.

10. With a diagram, show how to stack hot water and cold water to enable a fast mix, slow mix, and no mix.

11. What would happen if you stacked cold air on top of hot air? **Explain your reasoning.**

12. Hot air on top of cold air? **Explain your reasoning.**

13. Cold air over cold air? **Explain your reasoning.**

14. Warm air over warm air? **Explain your reasoning.**

15. What do you predict would happen if warm air and cold air were to bump into one another at the surface of the Earth? **Explain your reasoning.**