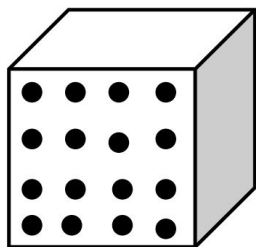Name: _____   Period: _____

6 Chemistry
Homework: Modelling Density and Calculations

1. Suppose that you have two cubes of exactly the same volume. You weigh them on a scale and find a mass of 8.91 g for one cube and 8.94 g for the other cube even though they are made out of the same material. How is this possible?

2. If two objects have the same mass what <u>must</u> be true about them? Justify your answer.
   1. They have the same volume.
   2. They are made of the same material.
   3. They contain the same amount of matter.
   4. They have the same density.

Explanation

3. What is the difference between an intensive and an extensive property? Give an example of each.

4. Gold is much more dense than aluminum. I have drawn a model representing gold atoms in a cube of pure gold. If I had a cube of aluminum that was exactly the same size, fill in what the atoms in the cube may look like. Explain your drawing.
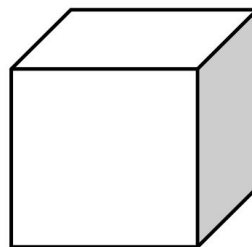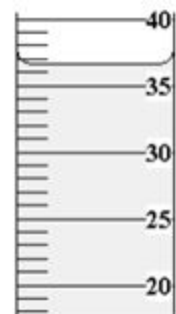

Gold   Aluminum

Explanation

5. In 1999, the United States Mint produced a coin called the Golden Dollar. It features an image of Sacagawea, the famous Native American guide for Lewis and Clark. It has a mass of 0.0098 kg and a volume of 1.1 mL. Is this coin solid gold? Calculate the density of the coin to help you explain your answer. (The density of gold is 19.3 g/mL). *Note:* You must justify your answer as to whether it is solid gold or not.

6. The density of iron is 7.88 g/mL. What is the mass of a piece of iron that has a volume of 0.023 L?

7. A rectangular block has a length of 13.2 cm, a width of 10.3 cm, and a height of 4.6 cm. If the block has a mass of 4920 g, what is its density?

8. What would be the correct way to record the volume in the graduated cylinder to the right? Label the certain and uncertain digit(s) and include units. Explain your answer.

Explanation