Chapter 3, Lesson 3 Activity Sheet Answers

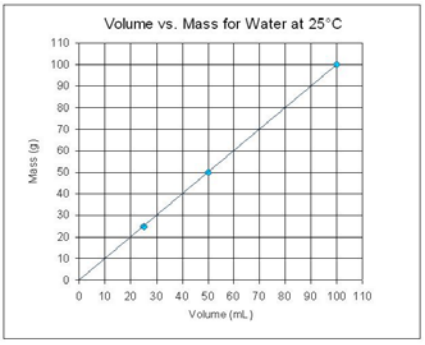
1. Yes, liquids have density. If the liquid has mass and takes up volume, then it must have density according to D=m/v.

   You can find the density of water by dividing the mass of a sample of water by the volume of the sample.

   Yes, they should. Although the larger amount of water was heavier, it also had more volume. The smaller amount of water was lighter, but it had less volume. Without doing any math, the relationship between mass and volume could be the same for both samples so they would work out to the same density.

2. Yes, the density is about 1g/cm^3 in all cases.

3. The density of water is 1g/cm^3.

4. 

   The density of water should be 1g/cm^3 for all samples, as indicated by a linear relationship between Mass and Volume.

5. The mass would be 40g. The density would be 1g/cm^3.

6. Answers will vary, but the volume and mass should be equal to one another, which would make the density calculate to 1g/cm^3.

7. Yes, density is a characteristic property of water because in all of our measurements, we confirmed the density of water to be 1g/cm^3 no matter how large or small the sample size.

8. No, the samples will not have the same mass because they contain different numbers of water molecules. The samples do, however, have the same density because the difference in mass is balanced by the difference in volume.

9. Yes, solids have the same density no matter how large or small the sample size.
   $\text{Density}_A = m_A/v_A = 200\text{g}/100\text{cm}^3 = 2\text{g/cm}^3$

   $\text{Density}_B = m_B/v_B = 100\text{g}/50\text{cm}^3 = 2\text{g/cm}^3$

   $\text{Density}_C = m_C/v_C = 50\text{g}/25\text{cm}^3 = 2\text{g/cm}^3$