Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ UGA myID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ch. 2 Density and Problem-Solving**

1. Which are examples of intensive properties? Select any that apply.
   1. **Boiling point**
   2. Mass
   3. Volume
   4. **Density**
   5. Length
2. What is the density of an object that has a mass of 25.3 g and a volume of 36.3 mL?
   1. 1.43 g/mL
   2. **0.697 g/mL**
   3. 918 g/mL
   4. 61.6 g/mL
3. What is the mass of an object that has a density of 1.52 g/mL and a volume of 26 mL?
   1. **40. g**
   2. 17 g
   3. 0.058 g
   4. 1.52 g
4. What is the volume of an object that has a mass of 52.3 g and a density of 19.08 g/mL?
   1. 998 mL
   2. 0.365 mL
   3. 1.00 mL
   4. **2.74 mL**

Isopropanol has a density of 0.785 g/mL.

1. What is the mass of 0.750 L of isopropanol?
   1. **589 g**
   2. 955 g
   3. 0.589 g
   4. 0.955 g
   5. 0.000589 g
2. What is the volume in liters of 355 g of isopropanol?
   1. 452 L
   2. 221 L
   3. **0.452 L**
   4. 0.277 L
   5. 0.00221 L

For each picture, determine if the densest block is on the left (a), right (b), or can’t be determined (c).

|  |  |
| --- | --- |
| b | b |
| c | a |

1. Three different substances were weighed and had their volumes measured. List the substances in order of decreasing density.

|  |  |  |
| --- | --- | --- |
|  | **Mass** | **Volume** |
| Substance 1 | 10.0 g | 10.0 mL |
| Substance 2 | 10.0 kg | 12.0 L |
| Substance 3 | 12.0 mg | 10.0 µL |

1. 3 > 2 > 1
2. 1 > 2 > 3
3. **3 > 1 > 2**
4. 2 > 1 > 3
5. Dr. Blankenship loves to get extra cold foam on top of her oatmilk lattes! After mixing the cold foam into the drink, all the ice cubes in the drink sank to the bottom of the cup. What is true about the densities of the substances?
   1. The density of the ice increased when the drink was mixed.
   2. **The cold foam has a lower density than the oatmilk.**
   3. The oatmilk has a lower density than the cold foam.
   4. The density of the ice decreased when the drink was mixed.
   5. The densities can’t be compared based on the given information.
6. The proton has a radius of 1.0 x 10-13 cm and a mass of 1.7 x 10-24 g. What is the density of a proton? V = 4/3πr3
   1. 1.7 x 1011 g/cm3
   2. **4.1 x 1014 g/cm3**
   3. 4.2 x 10-39 g/cm3
   4. 1.7 x 10-37 g/cm3
   5. 6.4 x 10-62 g/cm3
7. The density of titanium is 4.51 g/cm3. What is the volume in cubic inches of 3.5 lb of titanium? 1 lb = 454 grams, 1 in = 2.54 cm.
   1. 0.78 in3
   2. 350 in3
   3. **22 in3**
   4. 1.4 in3
   5. 440 in3
8. Polluted air can have carbon monoxide (CO) levels of 15.0 L CO/1 x 106 L of air. How many grams of CO would a person inhale in an 8.0-hour period if one breath is 0.50 L and the average person breathes 10. times per minute? The density of carbon monoxide is 1.2 g/L.
   1. **0.043 g**
   2. 2900 g
   3. 0.036 g
   4. 0.086 g