AP Prepwork- Chapter 1

1. A chemical plant releases 5.0 tons of gas into the atmosphere each day. The gas contains 5.0% by mass of sulfur dioxide. What mass (in tons) of sulfur dioxide is released in a period of one week?

2. What mass of mercury, density 13.6 g/mL, will occupy the same volume as 45.0 g of chloroform, density 1.50 g/mL?

3. A sample containing 33.42 g of metal pellets is poured into a graduated cylinder containing 12.7 mL of water, causing the water level to rise to 21.6 mL. Find the density of the metal.

a) 3.8 g/mL

b) 3.76 g/mL

c) 3.755 g/mL

d) 3.7551 g/mL

4. True or False

\_\_\_ In filtration, the filtrate is always a pure liquid

\_\_\_The fractional distillation of miscible liquids is only possible if the liquids have different boiling points.

\_\_\_Paper chromatography is a physical method for separating mixtures

\_\_\_Mixtures have fixed melting and boiling points

5.

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|  | Situation | Technique |
|  | To obtained drinking water from muddy water |  |
|  | To separate gas from crude oil |  |
|  | To remove leaves from a swimming pool |  |
|  | To obtain pure sugar from a solution |  |
|  | To determine whether the coloring in a fruit juice is a single substance or a mixture of colors. |  |

|  |  |
| --- | --- |
| mass of slab | 35.24 g |
| length of slab | 35.14 cm |
| width of slab | 15.85 cm |
| height of slab | 0.68 cm |

6.

What is the density of the slab? Show work.