Mass, Volume and Density Practice Problems & Review Worksheet

Practice Problems

1. A metal ball has a mass of 2kg and a volume of 6 m^3. What is its density?

2. Water has a density of 1 g/ml. What is the mass of the water if it fills a 10 ml container?

3. A certain gas expands to fill a 3 L container. Its mass is measured to be 0.6 kg. What is its density?

4. A solid is 5 cm tall, 3 cm wide and 2 cm thick. It has a mass of 129 g. What is its density?

5. What is the volume of a marble that has a mass of 3 g and d density of 2.7 g/ml?

6. A graduated cylinder is filled to an initial volume of 12.7 ml. A rock is dropped into the graduated cylinder. The final volume of the graduated cylinder is 18.2 ml. What is the rock's volume in both ml and cm^3? What method was used to determine this?

Homework

1. Define matter. Give 5 examples of matter.

2. What is mass? What instrument is used to measure mass? What are the basic units of mass?

3. What is volume? What instrument is used to measure liquid volume? What formula is used to calculate the volume of a solid object?

4. In terms of volume, how do ml and cm^3 relate to one another?

5. What is density? What formula is used to calculate density?

6. Water is most dense at 4 degrees Celsius. Since at this temperature 1 ml of water has a mass of 1 g, its density is _____.

7. A perfect cube has a width of 2 cm. What is the cube's volume? Show your work!

8. A box 5 cm long, 4 cm wide and 6 cm high would have what volume? Show your work!

9. Samples of three unknown liquids have been obtained. Calculate the density of each. Show your work!
   - Sample A has a mass of 24.0 g and a volume of 6.0 ml.

   - Sample B has a mass of 12.0 g and a volume of 6.0 ml.

   - Sample C has a mass of 12.0 g and a volume of 3.0 ml.

10. A graduated cylinder contains 17.5 ml of water. When a metal cube is placed onto the cylinder, its water level rises to 20.3 ml. Calculate the following:
    - Volume of the cube: _____ml- Volume of the cube _____ cm^3

11. How would you properly measure the **_mass_** of a liquid? Explain thoroughly.

12. Describe how to properly measure the volume of a liquid.

13. How would you determine the volume of an irregular shaped object, like a rock? Thoroughly describe!

14. You bought a new fish aquarium with the dimensions of 55 cm x 100 cm x 80 cm. What volume of water should you put in it? Show your work!

15. Will an object with a density of 1.05 g/ml sink or float in water? Explain.

16. Will an object with a density of 0.97 g/ml float or sink in water? Explain.

17. For A-D, determine the volume of liquid in each graduated cylinders. For E-H, draw in a meniscus for the indicated volume. Be precise!
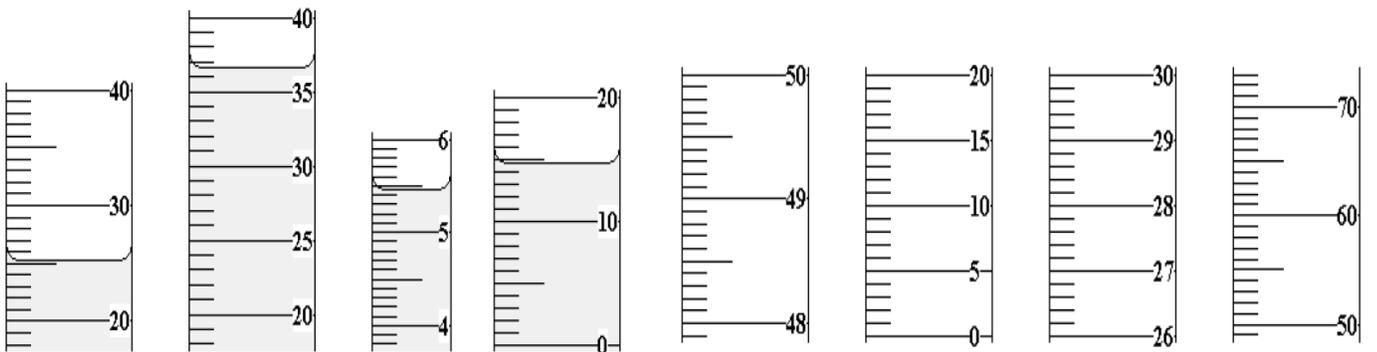
A. _____   B. _____   C. _____   D. _____   E. 49.21 mL   F. 18.2 mL   G. 27.65 mL   H. 63.8 mL