

**Density Practice Problems**

Density is the amount of mass per unit volume of a given object. It can be calculated using the following equation.

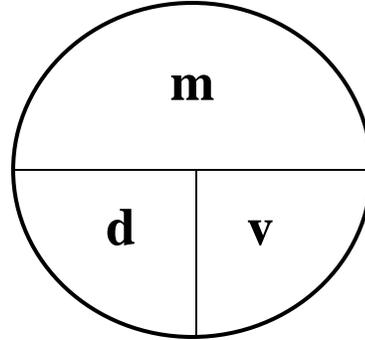
$$\mathbf{d=m/v}$$

If the density of the object and either mass or volume is known, by rearranging the above equation.

$$\mathbf{m=d*v}$$

$$\mathbf{v=m/d}$$

These three equations can be easily remembered by using the circle below. Simply cover up the measurement you are trying to solve and you are left with the mathematical relationship of the remaining two.



For the problems below, show all work and box your final answers.

1. A platinum bar measures 5.0 cm long, 4.0 cm wide, and 1.5 cm thick. It has a mass of 700.0 grams.

- a. Calculate the volume of the platinum bar.

- b. Calculate the density of the platinum bar.

2. A lead cylinder has a mass of 540 grams and a density of 2.70 g/ml. Calculate the volume of the lead cylinder.

3. A cork has a mass of 3 grams and a volume of  $16 \text{ cm}^3$ . Calculate the density.
  
4. A thin glass bottle holds 25 ml of liquid and has a mass of 19 grams. Calculate the density.
  
5. A bar of soap is 12 cm tall, 6 cm wide, and 10 cm long. It has a mass of 415 grams. What is the density of the bar of soap.
  
6. A sheet of metal is 2 cm wide, 10 cm tall, and 15 cm long. It was 4 grams. What is the density?
  
7. A pencil has a density of .875 g/ml. It has a mass of 3.5 grams. What is the volume?
  
8. Find the mass of a 50.0 ml quantity of water if the density of water is 1.00 g/ml.
  
9. If the density of  $45.0 \text{ cm}^3$  block of wood is 0.65 g/ml calculate the wood's mass.