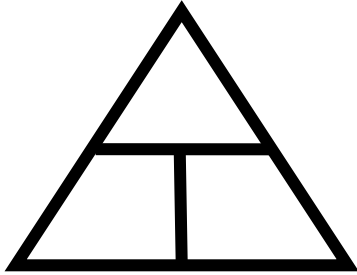# Density Practice!!! (60 points)

You must show all your work and use the correct units to receive full points!!! NO CALCULATORS!!!

Fill in the magical triangle of power, unicorns, and boogers below!!! (1/2 points)

What is the formula for determining the volume of a solid without using the water displacement method? (1/2 points)

Volume = _____ X _____ X _____

1. A rock has a volume of 15 cm^3 and a mass of 45 g. What is the density of the rock? Show your work. (2 points)

2. A different rock has a volume of 30 cm^3 and a mass of 60 g. What is the density of the rock? Show your work. (2 points)

3. Between the rocks in questions 1 and 2, which is heavier? Explain. (2 points)

4. Between the rocks in questions 1 and 2, which takes up the most space? Explain. (2 points)

5. Between the rocks in questions 1 and 2, which is denser? Explain. (2 points)

6. You are out hiking and you find a large boulder that you want to carry home. You need to determine the mass of the boulder before you decide if you can carry it or not. You know the density of the type of rock is 5 g/cm^3. You measure the boulder and determine that it has a volume of 18,120 cm^3. What is the mass of the boulder? Do you think you can carry it? (HINT: there are 453 g in a pound) Show your work. (3 points)

7. Rocks are often used to prevent erosion along the coast line. They have to have a mass of 2000 g minimum to withstand the impact of the waves. You want to determine how much space a basalt rock of that mass will take up. You know the density of basalt is 200 g/cm^3. What is the volume of the basalt rock that you need? Show your work. (3 points)

8. Someone is trying to sell you a golden cube. They say it is 40 g of pure gold. You know the density of gold is 19.3 g/cm^3. You decide that you want to make sure that it is real gold. Calculate what the volume of the gold cube *should* be. The cube's actual volume is 8 cm^3. Should you buy it? (3 points)

Solve the following density problems.

9. A metal ball has a mass of 2000 g and a volume of 5 cm^3. What is its density? (2 points)

10. Water has a density of 1 g/mL. What is the mass of the water if it fills a 10 mL beaker? (2 points)

11. A certain gas expands to fill a 300 mL container. Its mass is measured to be 600 g. What is its density? (2 points)

12. The mass of a liquid is 24 g and a volume of 6 mL. Calculate the density. (2 points)

13. What is the volume of a marble that has a mass of 30 g and a density of 3 g/mL? (2 points)

Write your own math problems!!! On the following pages make up your own word problems and include the answers. I might use one of your problems on the exam!

1. Write 5 math problems where you have to solve for density (2 points each)

2. Write 5 math problems where you have to solve for mass (2 points each)

3. Write 5 math problems where you have to solve for volume (2 points each)