

Open Note Sig Fig Quiz

Directions: Must earn at least 6 points for full credit. Must complete on own paper, show all work, and circle final answer with units. Sign your signature at the top of your paper to verify that you have adhered to the honor code.

Easy (1 point each)

1. The mass of an empty crucible is measured to be 14.312 g. A student puts magnesium into the crucible and measures the crucible with magnesium to be 16.018 g. What is the mass of the magnesium?
2. A fence is to be built around a yard. The yard is a rectangle 105.10 ft long and 61.4 ft wide. What length of fencing is required to build a fence that completely encloses the yard?
3. A student is to determine the volume of a metal. She measures 5.20 mL of water in a graduated cylinder. She then adds the metal to the water. The new volume is 6.00 mL. What is the volume of the metal?
4. A solid cube has a length of 5.211 cm, width of 3.012 cm, and height of 2.112 cm. Determine the volume of the cube.
5. A piece of paper has a width of 9.65 cm and a height of 15.20 cm. Determine the area of the paper.
6. A football field is 120 yards long and 40 yards wide. What is the area of the football field?

Medium (2 points each)

7. The mass of a metal is determined to be 9.10 g and its volume 3.222 cm³. Determine the density of the metal.
8. If a car travels 64.3 miles in about 60 minutes, how fast is the car traveling?
$$\left(\text{Velocity} = \frac{\text{distance traveled}}{\text{Time}} \right)$$
9. A student does three trials to determine the density of a metal. He calculates three densities: 2.132 g/cm³, 2.099 g/cm³, and 2.100 g/cm³. Determine the average density of the metal.

Hard (3 points each)

10. In a solution of sugar water, how many moles of sugar are present in 6.000L of water when the molarity of the sugar water is 3.2M? $\left(\text{Use the molarity formula } \text{Molarity}(M) = \frac{\text{moles}}{\text{Liters}} \right)$
11. As you are driving to school, the car's tire gauge comes on to tell you that the pressure in your tires is low. The car temperature gauge states that it is 54°F outside. Later in the day when you get out of school you notice that the temperature outside is warmer, 70.1°F. The tire pressure gauge in your car is no longer on. You decide to take the pressure of your tires. The instrument states your pressure is 32.4 PSI. What was the pressure in your tires in the morning?
 $\left(\text{Use Lussac's Law } \frac{P_1}{T_1} = \frac{P_2}{T_2} \right)$
12. Find the average volume of the object below. Three trials were performed using three different instruments.

Instrument	Trial	Initial Volume (mL)	Final Volume (mL)
50 mL beaker	1	5	8
25 mL graduated cylinder	2	5.0	7.5
10 mL graduated cylinder	3	4.9	7.2