

Sig Figs, Dimensional Analysis & Graphing – Accel. Chemistry Name/Pd: _____

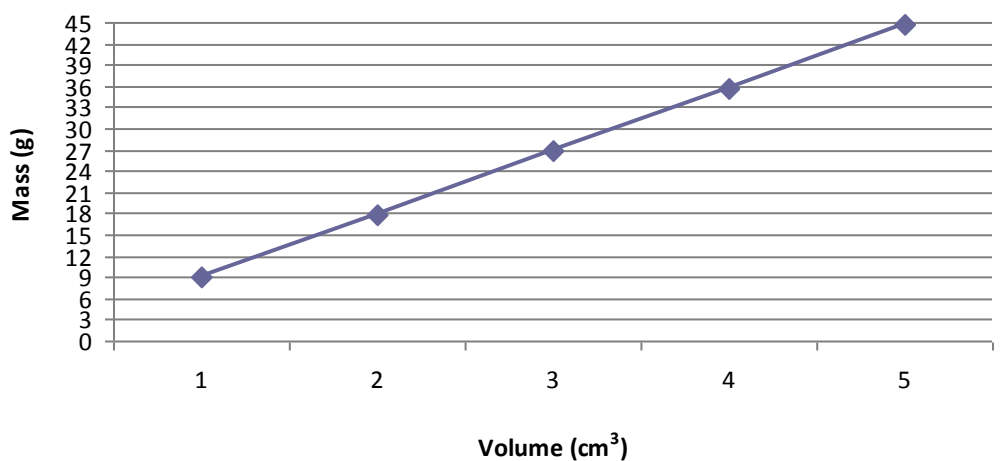
Answer the following questions about significant figures, dimensional analysis and graphing:

1. What are significant figures (digits) and why are they important in science?
2. Round the following numbers to 3 significant figures:
 - a. 100.568 m _____
 - b. 0.00012121 L _____
 - c. 1000000 g _____
 - d. 399.99 km _____
3. What is dimensional analysis?
4. What is an equivalent or a conversion factor? Give 2 examples.
5. What does it mean if you have precise lab results?
6. What does it mean if you have accurate lab results?
7. Give the equation for finding percent error.

Directions: Solve the following using dimensional analysis. Show ***all*** of your work. Write your answer with correct sig figs and units.

8. If an organism is 28,155,000 seconds old, how many days old is it?
9. How many cups are there in exactly 6 gallons? (4 quarts=1 gallon, 2pints=1 quart, 2 cups=1 pint)
10. How many days will it take to earn \$160 if your pay is \$6 per hour? - assume 8 hour work days
11. Because you never learned dimensional analysis, you have been working at a fast food restaurant for the past 35 years wrapping hamburgers. Each hour you wrap 184 hamburgers. You work 8 hours per day. You work 5 days a week. You get paid every 2 weeks with a salary of \$840.34. How many hamburgers will you have to wrap to make your first one million dollars?
12. What is the cost to drive from Sioux Falls to Omaha (185 mi) if the cost of gasoline is \$3.79 /gal and the automobile gets 18 mi/gal?
13. Convert the following metric measures using dimensional analysis:
 - a. How many millimeters are in 7.52 meters?
 - b. How many centigrams are in 92.15 kilograms?
 - c. 400 mL to L
 - d. 60 cm to m
 - e. 35 mg to g
 - f. 3 km to cm
 - g. How many milliliters are in 7.1 liters?
 - h. How many milliliters are in 200 cm³?

Density of an Unknown Substance



Substance	Density (g/cm ³)
Aluminum	2.70
Copper	8.94
Ethyl alcohol	0.789
Iron	7.86
Silver	10.50

Use the graph to answer the following questions:

14. Looking at the graph. What is the density of the unknown substance? What is the unknown substance?

15. What is the mass of ethyl alcohol that exactly fills a 200.0 mL container?

16. Calculate the density of sulfuric acid if 35.4 mL has a mass of 65.14 g.

17. What volume of silver will have a mass of exactly 25.0 grams?