September ~~29~~, 2014
(30)

PURPOSE: WHAT COULD YOU
USE DENSITY FOR IN REAL
LIFE?

Warm up "TO CALCULATE DENSITY
YOU DIVIDE MASS BY VOLUME."

Homework
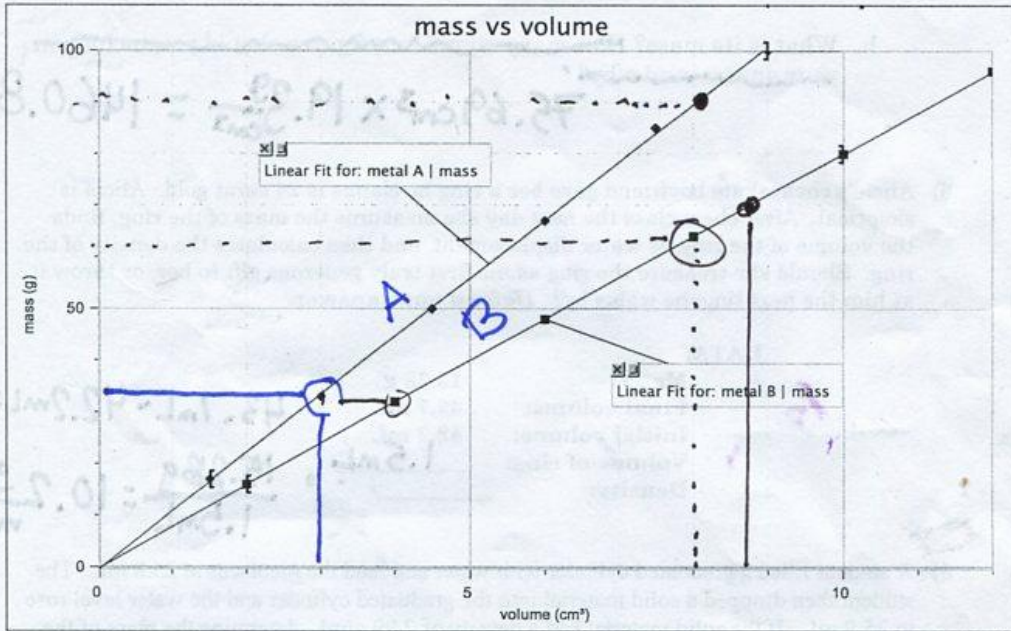
Slope; "For Every..."

EHS CΛ3MIs+ry

Mr. Genest

LISE MEITNER

Name **ANSWERS**

Date _____

visit http:genest.weebly.com

mass vs volume

Linear Fit for: metal A | mass

A   B

Linear Fit for: metal B | mass

mass (g)

volume (cm³)

1) Determine the density of each metal. Show all your work and include appropriate units.

(PICK ANY POINT ON the line)

mass A = 33 g

Volume A = 3.0 cm³

$density = \frac{mass}{volume}$

$density = \frac{62 g}{8 cm^3}$

$density = \frac{33 g}{3.0 cm^3}$

$d = 11 \frac{g}{cm^3}$

density B = 7.75

2) From the graph, estimate   NO MATH.

a. the mass of 8.0 cm³ of metal A. ~~~~~ grams 90

b. the volume of 70 g of metal B. __8.8 cm³__

c. mark on the graph how you found the answers above.

3) Convert 911.77 kg to mg: __911770000. mg__

4) Gold has a density of 19.3 g/ cm³. A cube of gold measures 4.23 cm on each edge:
   a. What is the volume of the cube?

   $(4.23) \times 4.23) \times (4.23) = 75.69 \, cm^3$

   b. What is its mass? ~~How many significant figures should you include in your answer and why?~~

   $75.69 \, cm^3 \times 19.3 \frac{g}{cm^3} = 1460.8 \, grams$

5) Alicia's cheapskate boyfriend gave her a ring he claims is 24 carat gold. Alicia is skeptical. After chem class the next day she measures the mass of the ring, finds the volume of the ring by water displacement, and then calculates the density of the ring. Should she treasure the ring as his first truly generous gift to her, or throw it at him the next time he walks by? **Defend your answer.**

   DATA:

Mass:	15.28 g
Final volume:	43.7 mL
Initial volume:	42.2 mL
Volume of ring:	1.5 mL
Density:	

   $43.7 mL - 42.2 mL = 1.5 mL$

   $\frac{15.28 g}{1.5 mL} = 10.2 \frac{g}{mL}$

6) A student filled a graduated cylinder with water and read the meniscus at 25.8 mL. The student then dropped a solid material into the graduated cylinder and the water level rose to 35.9 mL. If the solid material had a density of 2.99 g/mL, determine the mass of the solid object.

   $35.9 mL - 25.8 mL = 10.1 mL$

   $10.1 mL \times 2.99 \frac{g}{mL} = 30.2 g$

7) An object is known to have a mass of 4.145 g. A student makes three measurements and obtains the results; 3.102 g, 3.105 g, and 3.101 g. Are the student's measurements accurate or precise?

   All too low.
   But all repeatable.
   This is precise.

Name_____ **KEY**_____

Date_____ Period_____

Mr. Genest, Chemistry: Quiz III
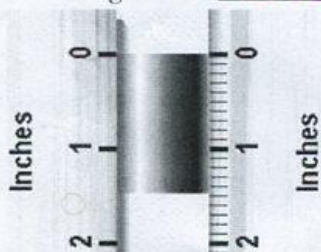
1. Round each to two significant figures
   - 550.9 is __**550**__
   - 951236 is __**950,000**__

2. How many significant figures are in each measurement below?
   - 75000 miles __**two**__
   - 903.0 g __**four**__
   - 800.9520 __**seven**__
   - 0.0005000050 nm __**seven**__

3. Write your best estimate of the length of this object using
   - The left ruler: __**1.5**__
   - The right ruler: __**1.48**__

1. Round each to two significant figures
   - 291.09 is __**290**__
   - 5123456 is __**5,100,000**__

2. How many significant figures are in each measurement below?
   - 500 miles __**one**__
   - 0.001000000 g __**seven**__
   - 3700 mm __**two**__
   - 20 cm^3 __**one**__

3. Write your best estimate of the amount of water using
   - The left ruler: __**0.8**__
   - The right ruler: __**0.87**__

1. f
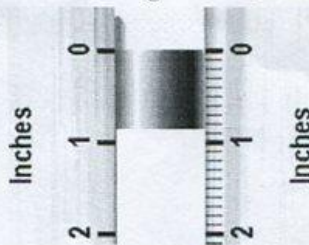
How Many Significant Figures in each?

- 640,002 m _SIX S.F._
- 10,000 s _one sf_
- ← 190.60 g _five sf_
- 1.0004230 g _eigh_
- 0.004200 m _four_
- 7,000.07 mm _SIX_
- 35,000 km _two_

  - 20 cm^3 _____
  -
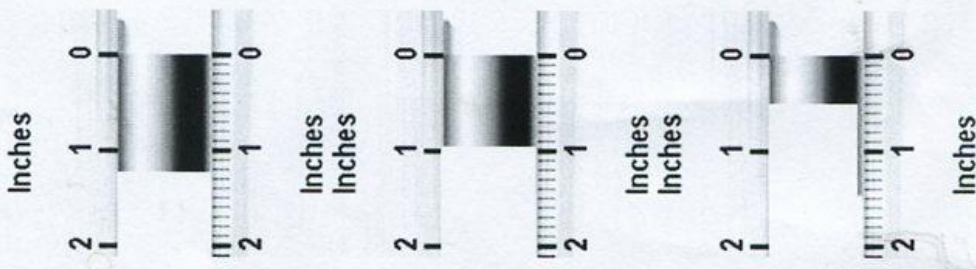
ROUND TO 3 SIG FIGS

- 23.15 g __23.2__
- 16.2455 m __16.2__
- 93.45 cm __93.5__
- 21.15 cm __21.2__
- 1.2793 kg __1.28__
- 101.00 fs __101__
- 0.112453 g __.112__
- 39) 0.010010 L __.0100__

Q: HOW MANY SIGNIFICANT FIGURES IN EACH?
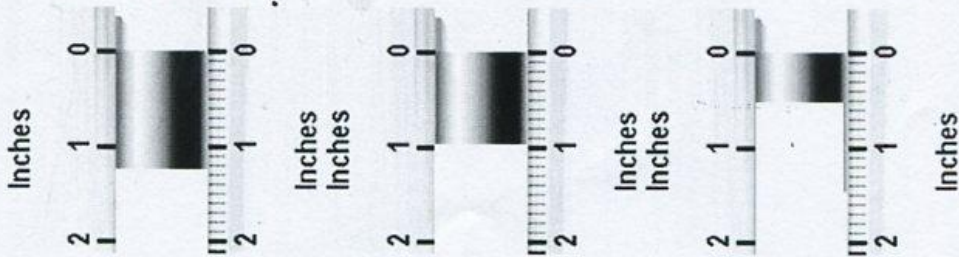
A: Respectively,

(two, three, one, two, one, two)

Monday Group Work

discard

1. Round each to two significant figures
   - 550.9 is __550__

   Keep
   - 951236 is __950000__

   Keep   *discard*

2. How many significant figures are in each measurement below?
   - 75000 miles __two__
   - 903.0 g __four__
   - 800.9520 __seven__
   - 0.0005000050 nm __seven__

3. Write your best estimate of the length of this object using
   - The left ruler: __1.4__
   - The right ruler: __1.45__