

SPECIAL IN-DEPTH  
HOMEWORK  
CHECK  
TOMORROW:

YOUR POD WILL  
PRESENT  
ONE OF  
THE ANSWERS  
IN DETAIL.

Quiz 3 Is Friday. The quiz has anything since the last Test. It never has things learned the day before the quiz.

Please get ready for homework answers :  
The Baltimore Sheet

**Purpose:**

Use **EXP** and ~~2ND~~ like a true chemist.

2ND EE

**Warmup:**

"The number 40100 has three significant  
figs."

DECIMAL POINT IS ABSENT SO  
IGNORE THE ATLANTIC

"The number 1.560 x 10<sup>7</sup> has FOUR  
significant figs."

COUNT  
SIG  
FIGS  
AS  
USUAL

IGNORE FOR  
SIG FIGS

#1 SCIENTIFIC NOTATION must always have the following:

$3.00 \times 10^8$   
Single digit followed by a decimal  
ten  
exponent

isn't sci notation:

91.4

0.000000154

11,000,000

HAS TWO SIG FIGS

007.1  
↖ ↗

is sci. notation

$9.14 \times 10^1$

$1.54 \times 10^{-7}$

$1.1 \times 10^7$

HAS TWO SIG FIGS

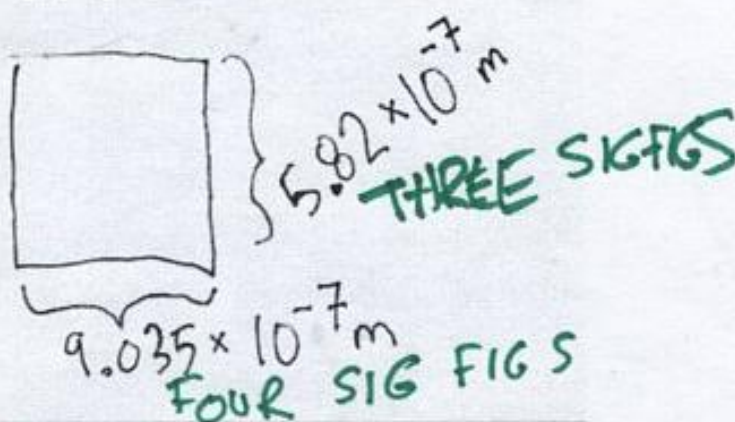
$7.1 \times 10^{-3}$

#2

What happens to significant figures when we do division and multiplication?

Find the area of this rectangle

(Remember to use `EXP`, `EE`, or `10^` like a true chemist!)



Answer:

$$5.25837 \times 10^{-13}$$

THREE SIG FIGS!

$$5.26 \times 10^{-13} \text{ m}^2$$

Rule for multiplying or dividing significant figures: the answer must have no more significant figures than the least figures that went into it.



MULTIPLY  
 3.33 THREE  
 3 ONE  
 3.3 TWO  
 3.333 FOUR

$169.879011 = 100$

CALCULATOR  
 GAVE ME THIS

SIG FIGS  
 RULES SAY  
 I MUST ROUND  
 THE ANSWER  
 TO ONE SIG FIG

ANALOGY:

JUST AS THE STRENGTH  
 OF A CHAIN IS  
 LIMITED BY THE STRENGTH  
 OF THE WEAKEST LINK  
 SO TO

IS THE NUMBER OF SIGNIFICANT  
 FIGURES OF AN ANSWER  
 LIMITED BY THE NUMBER  
 OF SIG. FIGS IN THE  
 NUMBER WITH THE  
 LEAST SIG FIGS.



### Dimensional Analysis

Use the six steps in your notes to make the following conversions

#### Part 1

- 1) 74 people  $\times \frac{(2 \text{ elbows})}{1 \text{ people}} = 148$  elbows
- 2) 3 football teams  $\times \frac{11 \text{ people}}{1 \text{ football team}} = 33$  people
- 3) 1 day  $\times \frac{24 \text{ hrs}}{1 \text{ day}} \times \frac{60 \text{ minite}}{1 \text{ hour}} \times \frac{60 \text{ seconds}}{1 \text{ minute}} = 86400$  seconds
- 4) 1 year  $\times \frac{365.25 \text{ day}}{1 \text{ year}} \times \frac{24 \text{ hour}}{1 \text{ day}} = 8766$  hours (approximately)
- 5) 22 baseball teams  $\times \frac{9 \text{ people}}{1 \text{ baseball team}} \times \frac{1 \text{ basketball team}}{5 \text{ people}} = \frac{39.6}{18.4}$  basketball teams

#### Part 2

- 6) Your school club sold 600 tickets to a chili supper. The chili recipe for 10 persons requires 2 teaspoons of chili powder. How many teaspoons of chili powder will you need altogether?

$$600 \text{ people} \times \frac{(2 \text{ teaspoons})}{(10 \text{ people})} = 120 \text{ teaspoons}$$

- 7) How many cups of chili powder will you need? Three teaspoons (tsp) equal one tablespoon (TBS) and 16 tablespoons equal 1 cup.

$$120 \text{ teaspoons} \times \left( \frac{1 \text{ tablespoon}}{3 \text{ teaspoon}} \right) \times \left( \frac{1 \text{ CUP}}{16 \text{ table spoon}} \right) = 2.5 \text{ cups}$$

- 8) How many seconds in a year? (assume 30 days in an average month)

$$1 \text{ year} \left( \frac{365.25 \text{ days}}{1 \text{ year}} \right) \left( \frac{24 \text{ hours}}{1 \text{ days}} \right) \left( \frac{60 \text{ min}}{1 \text{ hours}} \right) \left( \frac{60 \text{ Sec}}{1 \text{ min}} \right) = 31,557,600 \text{ seconds}$$