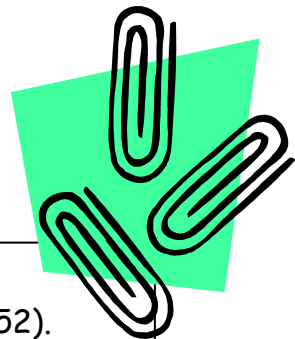Name: _____ And You Think You Have Significant Problems?

Date: _____   Significant Figure Rules & Practice

Period: _____

Important Ideas

- Measurements (3.25 cm) are different than numbers (3.14159252).
- Measurements consist of a number and units.
- Measurements are an action by someone with a measuring instrument.
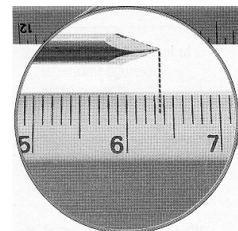- Measurements have built-in uncertainty; no measurement is exact.

PAPER CLIP:

1. **Estimate the length of your paperclip using each of the rulers given below…**
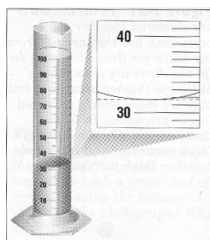

length of paper clip

_____ cm

length of paper clip

_____ cm

length of paper clip

_____ cm

LENGTH:

1. **In the picture at right, the scale on the ruler reads to the nearest _____. This means that we can reasonably estimate to the _____ place. Therefore, we might say that the length of this nail is _____.**

VOLUME:

2. In the picture at left, the scale on the graduated cylinder reads to the nearest _____. This means that we can reasonably estimate to the _____ place. Therefore, we might say that the volume of water shown here is _____.

Significant Figure Rules

1. Numbers other than _____ are _____significant!
2. Zeros _____ significant figures are _____ significant!
3. Any _____ zero used _____ the decimal point is significant!
4. Zeros used solely as _____ _____ (for the decimal point) are **NOT** significant!
5. When we **ADD/SUBTRACT**, your answer is rounded to the smallest _____ _____.
6. When we **MULTIPLY/DIVIDE**, your answer is rounded to the fewer number of _____ _____.

I. Determine the number of significant figures in each measurement.

1.) 6.751 g   4.) 2500 m   7.) 0.106 cm   10.) 26.509 g   13.) 2.690 g

2.) 0.157 kg   5.) 700. g   8.) 0.0067 g   11.) 54.52 cm^3 14.) 43.07 cm

3.) 28.0 nm   6.) 30.07 g   9.) 0.0230 cm   12.) 0.1209 m   15.) 635200l g

II. Add/Subtract the following, and write your answer with the correct number of significant figures.   DON'T FORGET ABOUT UNITS!!!!

<u>RULE</u>: When we add/subtract, your answer is rounded to smallest _____ place.

16.) 16.5 cm + 8 cm + 4.37 cm   20.) 23.27 km - 12.058 km

17.) 13.25 g + 10.00 g + 9.6 g   21.) 13.57 g - 6.3 g

18.) 2.36 m + 3.38 m + 0.355 m + 1.06 m   22.) 350.0 m – 200 m

19.) 0.0853 g + 0.0547 g + 0.037 g + 0.00387 g   23.) 27.68 cm –14.369 cm

III. Multiply/Divide the following, and write your answer with the correct number of significant figures.   PLEASE BE CAREFUL ABOUT YOUR UNITS!!!

<u>RULE</u>: When we multiply/divide, your answer is rounded to the fewer # of _____ _____.

24.) 2.6 cm x 3.78 cm   28.) 35 cm^2 ÷ 0.62 cm

25.) 6.54 m x 0.37 m   29.) 39 g ÷ 24.2 g

26.) 0.036 m x 0.0002 m   30.) 0.58 dm^3 ÷ 2.15 dm

27.) 3.08 km x 5.2 km   31.) 40.8 m^2 ÷ 5.050 m