Name:_____

Significant Figures HW ANSWER KEY

1. Why are significant figures important when taking data in the laboratory?

Significant figures indicate the precision of the measured value to anybody who looks at the data. For example, if a weight is measured as being "1100 grams", this means that the mass has been rounded to the nearest hundred grams. If a weight is measured as being "1100.0 grams", this means that the mass has been rounded to the nearest tenth of a gram. Though the numbers plug into the calculator in exactly the same way, they mean very different things.

2. Why are significant figures NOT important when solving problems in your math class?

Math classes don't deal with measured values. As a result, all of the numbers are considered to be infinitely precise.

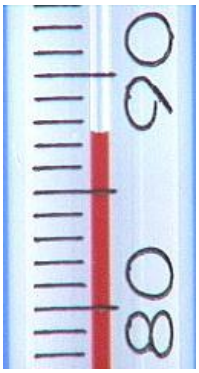
3. Using two different instruments, I measured the length of my foot to be 27 centimeters and 27.00 centimeters. Explain the difference between these two measurements.

As in problem 11, the first measurement implies that my foot is somewhere between 26.5 and 27.4 cm long. The second measurement implies that my foot is between 26.995 and 27.004 cm long. Again, though the numbers plug into the calculator in the same way, they imply different precisions.

4. State the number of significant figures in each of the following.

3.57 m **= 3**	730 000 kg **= 2 or more**	0.6034 g/mL **= 4**
20.040 g **= 5**	12 700. mL **= 3 or more**	19.0 s **= 3**
0.004 m^3 **= 1**	30 *atoms* **= infinite**	810 °C **= 2 or more**

5. Make measurements. Use the pictures on the right and show the correct number of significant figures.



87.5° F

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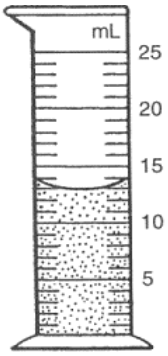

12.9 mL

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4.19 cm

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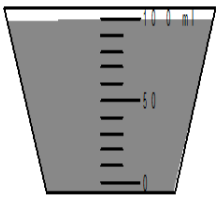
6. John is working in the lab and wants to be as accurate as possible when measuring out his chemicals. His experiment calls for <u>10ml</u> of a sodium chloride solution. Which of the following containers should be used to give him the most accurate volume? Note: Ignore the liquid levels in the containers.



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