Significant Figures, Version 2.0, 6/11/08, Blas & Lee

Answer the questions below based on the tables provided. In this document, "SF" stands for *Significant Figures*.

Group 1

Number	# of SF
7	1
3.2	2
6.54	3
855	3

Critical Thinking Questions

1. Engage in a group discussion that tries to determine what pattern or rules exist between the **Numbers** and **# of SF** listed in Group 1 and write that rule below…

2. How many SF's would be in the following numbers?
   a. 95 ___
   b. 7.56 ___
   c. 45256 ___

Group 2

Number	# of SF
305	3
3005	4
6.05	3
6.005	4
9.05006	6
9.50006	6

3. Engage in a group discussion that tries to determine what pattern or rules exist between the **Numbers** and **# of SF** listed in Group 2 and write that rule below…

4. How many SF's would be in the following numbers?
   a. 35 ___
   b. 706 ___
   c. 35.06 ___
   d. 60.701 ___

Group 3

Number	# of SF
30	1
300	1
3000	1

Group 4

Number	# of SF
30.	2
300.	3
3000.	4

Group 5

Number	# of SF
1.0	2
35.0	3
35.00	4
10.0	3
300.00	5

5. Engage in a group discussion that tries to determine what pattern or rules exist between the **Numbers** and **# of SF** listed in Groups 3, 4 & 5 and write that rule below…

6. How many SF's would be in the following numbers?
   a. 722 _____
   b. 702.05 _____
   c. 50 _____
   d. 50. _____
   e. 500 _____
   f. 700 _____
   g. 7.700 _____

Group 6

Number	# of SF
0.1	1
0.020	2
0.00213	3
0.0303	3

Group 7

Number	# of SF
1×10^{-1}	1
2.0×10^{-3}	2
2.13×10^{-4}	3
3.03×10^{-2}	3
1.20×10^{-4}	3
2.060×10^{10}	4
2.060×10^{-10}	4

7. Engage in a group discussion that tries to determine what pattern or rules exist between the **Numbers** and **# of SF** listed in Groups 6 & 7 and write that rule below…

8. How many SF's would be in the following numbers?
   a. 0.01 ___
   b. 0.0023 ___
   c. 23.6×10^{-4} ___
   d. 23.0×10^{-4} ___
   e. 1.234×10^{3} ___

9. Now, condense all of the rules that you've written above into the shortest, most condensed list as possible that still applies to every group listed above. These rules must be grammatically correct.

Now, go to the board as directed by the instructor and add your rules to the appropriate section. After the class discussion and editing session, write the final SF rules on your note card.

Exercises

Complete the following table:

Number	# if SF	Group above (1-7) that this number would fit into
2.307	4	___
___	5	4
5.230	___	5
271.2	___	___
1.750×10^{-3}		7
___	4	6
5000	___	3

Exercises

Complete the following table:

Number	# of SF	Do the number of SF match the example to the left (circle Yes or No)
8.020	3	Yes…No
0.23060	5	Yes…No
5.670×10^{10}	3	Yes…No
5000.00	5	Yes…No

Problems

1. If you were to weigh a handful of 14 marbles and the entire lot weighed 17.3 g, what would each marble weigh? As a group, decide how many decimal places you should report in your answer.
    Answer _____ g

2. Discuss as a group and explain why you decided on that number of decimal places? Use grammatically correct sentences.

3. Do you think that there should be a standard number of decimal places reported in answers to problems? How would this benefit/harm science as a whole? Discuss this as a group and explain. Use grammatically correct sentences.