WS 2.0 Part II. Significant Figures! Name:_____p.____

1. How many significant figures are in each of these numbers?

1.221___ 24____ 95.37____ 1.28×10^{2}_____ 3.1×10^{-1} ____ 1234.56789____ 7____

2. Rules for whether <u>zeroes</u> count as significant figures! Read the rules and fill in the blanks.

a. Zeroes in between two non-zeroes <u>always</u> count as significant figures.

For example, 6008 has 4 significant figures, 34031 has _____ significant figures, .230004 has 6 significant figures.

b. Zeroes on the <u>left side</u> of a number <u>never</u> count as significant figures.

For example, 0.000011 has 2 significant figures.
0.733 has 3 significant figures.
0.003 has 1 significant figure

0.00044 has _____ significant figures.
.088 has _____ significant figures.
0.000301 has _____ significant figures

c. Zeroes on the <u>right side</u> of a number <u>sometimes</u>* count as significant figures.

Examples: 0.003 has 1 sig. fig. 350 has 2 sig. figs. 87100 has 3 sig figs.
0.0030 has 2 sig figs 350. has 3 sig. figs 87100. has 5 sig figs.
350.0 has 4 sig. figs 87100.0 has 6 sig figs.
8.710×10^{4} has 4 sig. figs.

0.030000 has _____ sig figs. 440 has _____ sig figs.
440.0 has _____ sig figs 440. has _____ sig figs

* What determines whether "right end" zeroes count as significant figures?

5. How many significant figures are in each of these numbers?

0.0023 _____	1.20×10^{3}_____	0.00002070_____	8×10^{-2} _____
0.410 _____	600 ____	0.004 _____	0.0110_____
707 _____	600. _____	24.40 _____	50. _____

6. Round or rewrite the given number so that it has 3 sig. figs., and so it has 2 sig. figs.

<u>Number</u>	<u>with 3 s.f.</u>_____	<u>with 2 s.f.</u>_____.
90	_____	_____
11.48	_____	_____
7	_____	_____
436.2318	_____	_____
0.02078	_____	_____
0.0154449	_____	_____
0.040611	_____	_____
18.921	_____	_____
18.981	_____	_____
3.5	_____	_____
0.0037921	_____	_____
30.28	_____	_____

7. Rewrite each number in scientific notation so that it keeps the same number of significant figures as it started with.

2150. _____	300_____	0.0070_____
2150 _____	310_____	0.000006780_____
0.00025_____	310.0_____	0.11240_____
0.0002500_____	5.2_____	0.007_____

8. Round or rewrite the given number to 3 sig. figs., and to 2 sig. figs. Use scientific notation only if necessary.

Number	with 3 s.f.	with 2 s.f.
80	_____	_____
7060	_____	_____
600	_____	_____
3.482	_____	_____
10.46	_____	_____
101.46	_____	_____
20.267	_____	_____
4	_____	_____
0.0002579	_____	_____
0.0030087	_____	_____
6618.328	_____	_____

5. Perform the following operations, and then report the answer to the correct number of significant figures.

	Calculator Answer:	Correct sig. fig. answer:
95.13 – 86.93	_____	_____
1.4571 + 10.296	_____	_____
3.1222 – 2.40	_____	_____
15 + 1.28387	_____	_____
15 + 1.72134	_____	_____
23.17 – 23.06	_____	_____
163.43 + 1.4	_____	_____
126 – 3.9	_____	_____
143 + 17	_____	_____

6. Perform the following operations, and then report the answer to the correct number of significant figures.

	Calculator Answer:	Correct sig. fig. answer:
630.2 g / 703.9 mL	_____	_____
(7.86 g/mL) *(4.55 mL)	_____	_____
81.97g / 10.1 mL	_____	_____
10000. / 2500.	_____	_____
112.8 x 0.13	_____	_____
26 x 5.486	_____	_____
486 / 162	_____	_____
6000. / 600.	_____	_____
31.88 / 31.9	_____	_____