

Significant Figures ("sig figs") Handout

• Counting sig figs in reported numbers:

1. All non-zero numerals are ALWAYS significant.
(1, 2, 3, 4, 5, 6, 7, 8, 9)
2. Zeros are frequently significant.
 - a. In number's with explicit decimal places: left, not; trapped & right, yes.

dot
0 . 0 0 5 0 0 4 0
 left zeros trapped right zero
 NOT zeros YES
 YES

dot
3 0 0 . 8 0
 trapped right zero
 zeros YES
 YES

dot
5 1 , 0 0 0 , 0 0 0 . 0 0
 right zeros
 YES

- b. In number's WITHOUT explicit decimal places:
no dot

3 0 , 1 0 0
 trapped right zeros
 zero NOT
 YES

no dot
5 0 , 1 0 0 , 0 0 0
 trapped right zeros
 zero NOT
 YES

• Significant figures in calculations:

1. Multiplication and division
Result has the same number of sig figs as the lowest number of sig figs in the input.

$$5.0 \times 2.00 = 10.$$

2 sig figs 3 sig figs 2 sig figs

$$10. / 2.00 = 5.0$$

2 sig figs 3 sig figs 2 sig figs

2. Addition and subtraction
Result has the shortest number of decimal places as the lowest number of decimal places in the input.

$$5.00 + 6.0 = 11.0$$

2 dec place 1 dec place 1 dec place

$$10. - 2.00 = 8$$

0 dec place 2 dec place 0 dec place

3. Sig figs in logs.
Result has the same number of decimal places in the input has sig figs.

$$\log(1.00 \times 10^{-5}) = -5.000$$

3 sig figs 3 dec place

4. Sig figs in antilogs.
Result has the same number of sig figs as the number of decimal places in the input.

$$10^{-6.00} = 1.0 \times 10^{-6}$$

2 dec place 2 sig figs

5. Combinations of addition and subtraction. Follow order of operations: [(parenthesis), x and /, + and -]

$$3.00 \times (5 + 7.00) = 3.00 \times (12)$$

0 dec place 2 dec place 0 dec place

$$3.00 \times (12) = 36$$

3 sig figs 2 sig figs 2 sig figs