

**Significant Figures Rules**

1. All digits that are not zero are significant.

**22 563**

1. Zeros that are in between significant figures are significant.

9**0**2 5**0**.**0**7

1. Zeros to the left of the first significant figure are insignificant.

**0**.**0000**5 **0**.**0**56

1. Zeros that come after a significant figure have several rules:
	1. Zeros after decimal point are always significant

23.**000** 3.56**00**

* 1. Zeros **after** a significant figure and **before** the decimal point are significant

63**0**.00 82**00**.44

* 1. Zeros after a significant figure with no decimal are ambiguous and should be avoided using scientific notation
		1. 3 significant figures **1**.**40** x103
		2. 2 significant figures **1**.**4** x103
		3. 2 significant figures ambiguous **14**00
		4. 4 significant figures **1400**.

**Notice the difference between the ambiguous 1400 without a decimal point and the 1400. with a decimal point.**



**Sig. Figs in Calculations**

Remember that sig-fig rules should only be used ***at the end of a calculation***, never on intermediate results.

**Multiplication and Division**

Count the number of sig figs in each of the numbers that are multiplied or divided. The rounded answer (the product or the quotient) can have ***no more than the least number of sig figs*** in any of the numbers multiplied or divided.

$$\left(4.1\right)\left(3.75\right)=15.375≈15 or 15.$$

**Addition and Subtraction**

Count the number of decimal places in each of the numbers added or subtracted. The rounded answer (the sum or the difference) can have ***no more than the least number of decimal places*** in any of the numbers added or subtracted.

$$\left(914.1\right)+\left(3.752\right)+\left(169.5876\right)=1087.4396≈1087.4$$

**Exact Values and Definitions**

Some values are known exactly, such as 12 eggs in a dozen and 60 seconds in a minute. Because these values are definitions, there is no uncertainty in them and they are not considered when determining sig-figs in an answer.