Significant Figures

⇨ rules for counting sig figs

(1) non-zero integers - always significant
(2) zeros to the left of the first non-zero digit - not significant
i.e., 0.008
(3) captive zeros - always significant
i.e., 8.08
(4) if # > 1, all zeros right of the decimal point are significant
i.e., 3.040
(5) if # < 1, trailing zeros are significant
i.e., 0.00930
(6) exact numbers - ???; use scientific notation to clarify
i.e., 100 can have 1, 2 or 3 sig figs
but 1.0×10^2 has only 2 sig figs

⇨ in adding or subtracting sig figs, the final result keeps the same number of **decimal places** as the least precise number

i.e.,
$$\begin{array}{r} 415.5 \\ 3.64 \\ +\ 0.238 \\ \hline 419.378 \end{array}$$

⇨ **419.4**

⇨ in multiplying or dividing sig figs, the final result has the same number of **sig figs** as the least precise number

i.e., $5.0 / 0.794 = 6.297229\ldots$

⇨ **6.3**

Note: sig figs ending in 0 - 4 "round down", 5 - 9 "round up"