# Unit 3

{ Module 1

# Module Concepts

- Performing calculations with numerical quantities and reporting answers using the proper number of significant figures

# Sig Fig Calculation Rules

Addition and Subtraction

- The answer cannot be any more precise than the least precise measurement.
- Line up the decimals in the numbers provided. Draw a line through (or just following) the numerical position where the last significant figures falls in the least precise measurement.
- Final answer should be rounded so that it ends in the numerical position where the line was drawn.
- Click here for a video explanation.
- Click here for a different perspective/explanation.

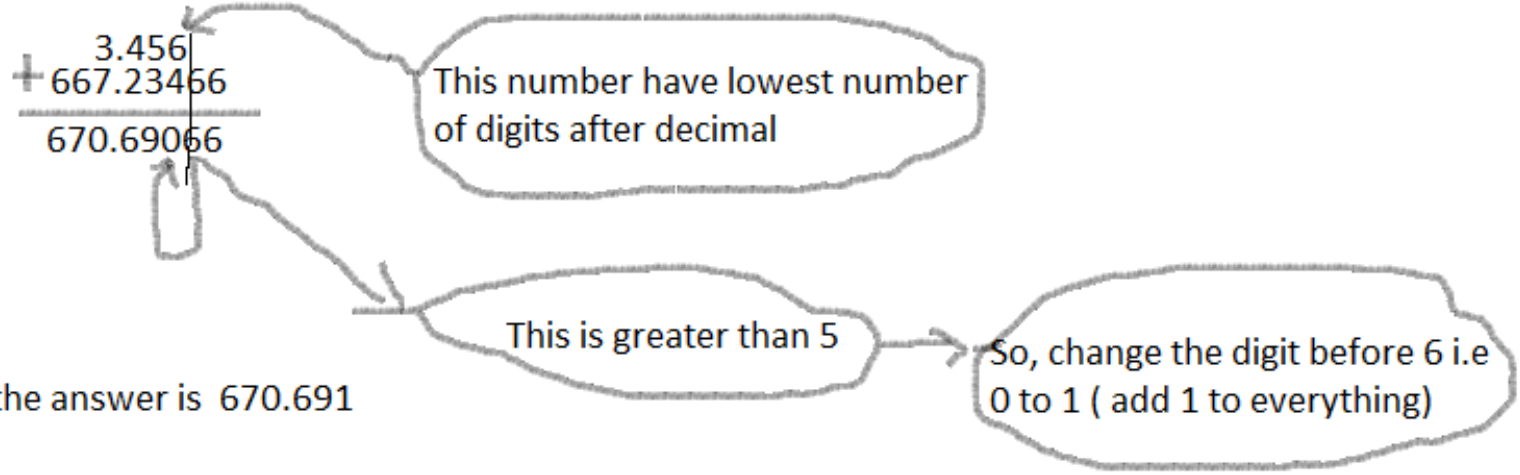
# An Addition Example

**Rules For Addition and Substraction**

Take two randon numbers like 3.456 and 667.23466

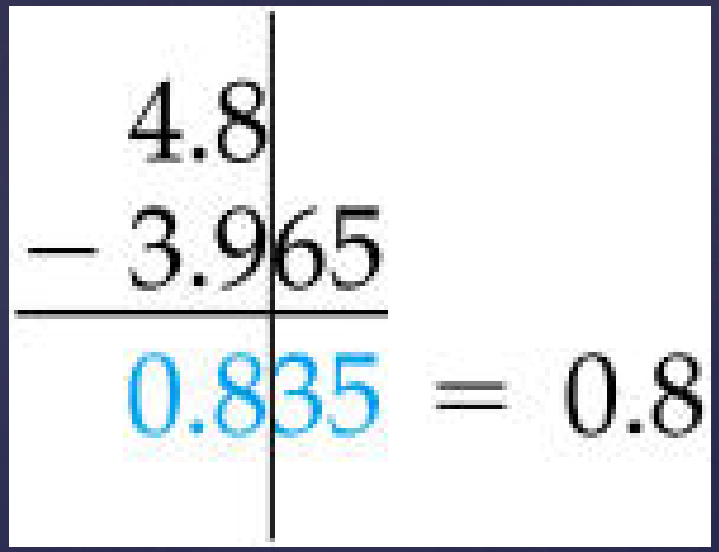
1)Add using calculator, the result is 670.69066

2) Arrange the deciamal below one another like this




3) So, the answer is 670.691

# A Subtraction Example



# Sig Fig Rules - Cont'd

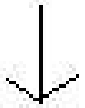
Multiplication and Division

- Count the NUMBER of significant figures in each value.
- Round the final answer so that it has the same NUMBER of significant figures as the value that had the FEWEST number of significant figures.
- Example:  Multiply a number that has 2 sig figs by a number that has 5 sig figs, round your answer to 2 sig figs.
- Watch!
- A different perspective/explanation!

# A Multiplication Example

3.231 x 2.01

4 sig figs 3 sig figs



Answer must thus contain 3 significant figures

3.231 x 2.01 = 6.49431=> 6.49(corrected to 3 sig figs

# A Division Example

$$\frac{4.02 \quad \text{(3 sig figs)}}{2.1 \quad \text{(2 sig figs)}}$$

Answer must have 2 sig figs

$$\frac{4.02}{2.1} = 1.9143 \Rightarrow 1.9 \text{(corrected to 2 sig figs)}$$