# Y7 Maths Knowledge Organiser Topic 2: BIDMAS

| What must I be able to do? | Key vocabulary | |
|---|---|---|
| ☐ Carry out combined operations involving all four operations<br>☐ Understand and use brackets<br>☐ Use simple index notation<br><br>➢ Sparx M521 | Brackets | A pair of curved symbols to indicate that the operation must be <u>done first</u>.<br>e.g. 3 x (4 + 5) the brackets around 4 + 5 tell us to work that out before multiplying by 3, so 3 x 9 = 27. |
| | Indices | Also known as <u>powers</u>. Describes the small number that tells you to square, cube etc. e.g. $3^2 = 3 \times 3 = 9$, the 2 is the power/index. *Indices is the plural of index.* |

## Order of operations (BIDMAS)

**B**rackets

– operations in brackets are done first

**I**ndices

– then evaluate any powers/roots

**D**ivision and **M**ultiplication

– carried out in order from left to right in the question

**A**ddition and **S**ubtraction

– carried out in order from left to right in the question

e.g.

$(3 + 5)^2 + 4 \times 2 - 4$ — Bracket first so 3 + 5 = 8

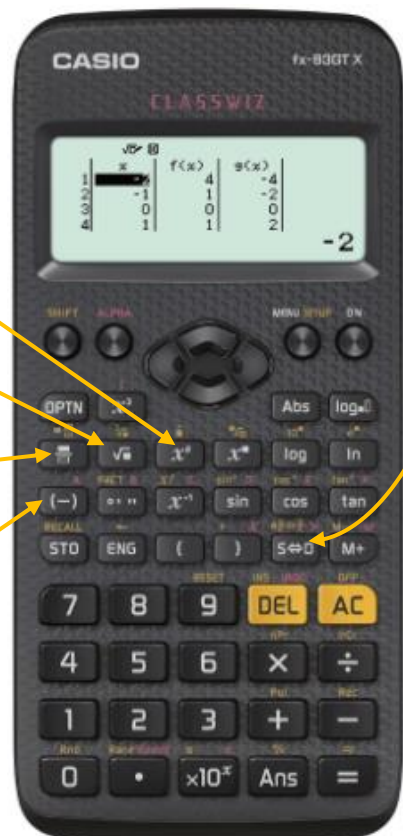$= 8^2 + 4 \times 2 - 4$ — Now the index (square). 8 x 8 = 64

$= 64 + 4 \times 2 - 4$

$= 64 + 8 - 4$ — Multiplication comes before addition. 4 x 2 = 8

$= 72 - 4$

$= 68$ — Addition/subtraction are just done in order left to right. So we do the add first here

## Using a calculator

A good modern calculator will automatically follow the rules of BIDMAS and there is no need to input a question in stages. You can even input questions so that they look exactly like they would on paper. These calculators will also change answers between fractions, deimals and other equivalent values. On the Sharp calculator use 'Change' and on a Casio press S⇔D.

Square button

Square root button

If you need to put in a large fraction calculation (like the one on the left screen) press the fraction key **first**.

Input a negative number. Note that a negative number to a power **must** be in **brackets**

e.g. $(-5)^2$ not $-5^2$.