

## Rearranging Equations

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Graduate Bsc (Hons) MathsSci (Open) GIMA

Making a parameter the subject of an equation is carried out by simply applying the rules of arithmetic.

Remember the golden rules:-

"To keep both sides of an equation equal what ever you do to one side you **MUST** do to the other whether it is addition , subtraction, multiplication or division. "

AND

"If you are multiplying or dividing you must do it to **EVERY TERM** in the equation not just some terms."

Addition: Make L the subject of the equation.

$$L - 2 = h - t$$

If we add 2 to each side we get

$$L - 2 + 2 = h - t + 2$$

$$L = h - t + 2$$

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Subtraction: Make  $x$  the subject of the equation

$$x + 2y = p^2 - q$$

If we subtract  $2y$  from each side we get

$$x + 2y - 2y = p^2 - q - 2y$$

$$x = p^2 - q - 2y$$

Multiplication: Make  $b$  the subject of the equation.

$$\frac{1}{2}x + y = y^2 + c$$

If we multiply each term by 2 (remember you MUST do ALL terms)

$$2 \cdot \frac{1}{2}x + 2y = 2 \cdot y^2 + 2c$$

$$x + 2y = 2y^2 + 2c$$

If we subtract  $2y$  from each side we get

$$x + 2y - 2y = 2y^2 + 2c - 2y$$

$$x = 2y^2 + 2c - 2y$$

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**Division:** Make (f) the subject of the equation

$$f \cdot g + 2 = z$$

If we divide through by g (remember you MUST do ALL terms)

$$\frac{f \cdot g}{g} + \frac{2}{g} = \frac{z}{g}$$

$$f + \frac{2}{g} = \frac{z}{g}$$

$$\frac{f \cdot g}{g} + \frac{2}{g} - \frac{2}{g} = \frac{z}{g} - \frac{2}{g}$$

If we subtract  $2/g$  from each side we get

$$f = \frac{z}{g} - \frac{2}{g}$$