

Composing Functions

A function tells you what to do with an argument.

If $f(x) = 3x + 2$, x is the argument and f is the function which says 'multiply the argument by three then add two'.

Looking at functions this way is especially useful when composing functions.

Suppose $f(x) = 3x + 2$, $g(x) = x^2 + x$

$f(g(x))$ means 'take the argument $g(x)$, multiply it by three then add two'.

$$f(g(x)) = 3g(x) + 2 = 3(x^2 + x) + 2 = 3x^2 + 3x + 2$$

$$\text{and } f(g(1)) = 3g(1) + 2 = 3(1^2 + 1) + 2 = 8$$