



Equations

Often in working with a formula we may need to substitute more than one value for the variable.

Example

The cost, c , in cents for making pencils is given by the formula

$$C = 5 + 2n$$

C Cost in cents n number of pencils made

The cost depends on the number of pencils you buy

Function

A function is just an expression evaluated at a specific value

Example

The cost, c , in cents for making pencils is given by the formula



In function notation

$$C(n) = 5 + 2n$$

$C(n)$ Cost in cents of "n" pencils

n number of pencils made

The cost depends on the number of pencils you buy

Function Notation

Function Notation

- To represent functions, we use symbols like $f(x)$ and $g(x)$.
- The symbol $f(x)$ is read "f of x" and simply means that the expression that follows involves x .

Evaluating Functions

If $f(x) = 3x^2 - x - 6$, find...

$$\begin{aligned} \text{a) } f(5) &= 3(5)^2 - 5 - 6 \\ &= 3(25) - 5 - 6 \\ &= 75 - 5 - 6 \\ &= 64 \end{aligned}$$

✓
✓
✓
BÉDMÁS

Try These!!!

#1. If $f(x) = 3x^2 - x - 6$, find...

a) $f(5)$ ✓

b) $f(-4) = 3(-4)^2 - (-4) - 6$
 $= 3(16) + 4 - 6 = 46$

c) $f\left(\frac{2}{3}\right) = 3\left(\frac{2}{3}\right)^2 - \left(\frac{2}{3}\right) - 6$

$$\begin{aligned} &= 3\left(\frac{4}{9}\right) - \frac{2}{3} - 6 \\ &= \frac{4}{3} - \frac{2}{3} - \frac{6 \cdot 3}{3} \\ &= \frac{4}{3} - \frac{2}{3} - \frac{18}{3} \end{aligned}$$

$$\begin{aligned} &= \frac{4}{3} - \frac{2}{3} - \frac{18}{3} \\ &= \frac{4 - 2 - 18}{3} \\ &= \frac{-16}{3} \end{aligned}$$

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Solving Equations

Simplify and then solve for x:

Example 1:

$$15 + x + 16x = 100$$

$$15 + 17x = 100 - 15$$

$$\frac{17x}{17} = \frac{85}{17}$$

$$x = 5$$

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Example 2:

$$-25 = 12x + 10 - 4x$$

Hours Worked, h	Gross Pay, P (\$)
1	12
2	24
3	36
4	48
5	60

$$P(h) = 12h$$

$$P = 12h$$

$$P(h) = 12h$$

Let's write the function notation

$$P(h) = 12h$$

What is the person's pay after 20 hours?

$$P(20) = 12(20)$$

$$P(20) = \$240$$

$$f(x) = 7x - 1 \quad g(x) = 3(x - 1)$$

$$h(x) = 2x^2 - 1$$

a) $f(3)$

$$\begin{aligned} f(3) &= 7(3) - 1 \\ &= 21 - 1 \\ &= 20 \end{aligned}$$

b) $h(-2)$

$$\begin{aligned} h(-2) &= 2(-2)^2 - 1 \\ &= 2(4) - 1 \\ &= 8 - 1 \\ &= 7 \end{aligned}$$