Mathematics 10C

Unit RF: Relations and functions

Function notation

Substituting −1

- The rule is f(x) = $3x - 2$.
- The input −1 gives f(−1) = 3(−1) − 2 = −5.

A name for the output

- The rule f(x) = $3x$ — 2 matches y = 3x − 2.
- The symbol g(t) = 7 + t uses t as the input name.

Key terms

function notation

A way to name a function and its output, with the input written in parentheses. (f(x) = $3x - 2$)

domain value

A number you are allowed to put into the function. (the input x)

range value

The number the function gives back for a domain value. (the output f(x))

From an input to an output

- The input -1 goes into $f(x) = 3x - 2$.
- The calculation is $-3 - 2$.
- The output is -5, so the point is $(-1, -5)$.



f(x) = 3x - 2

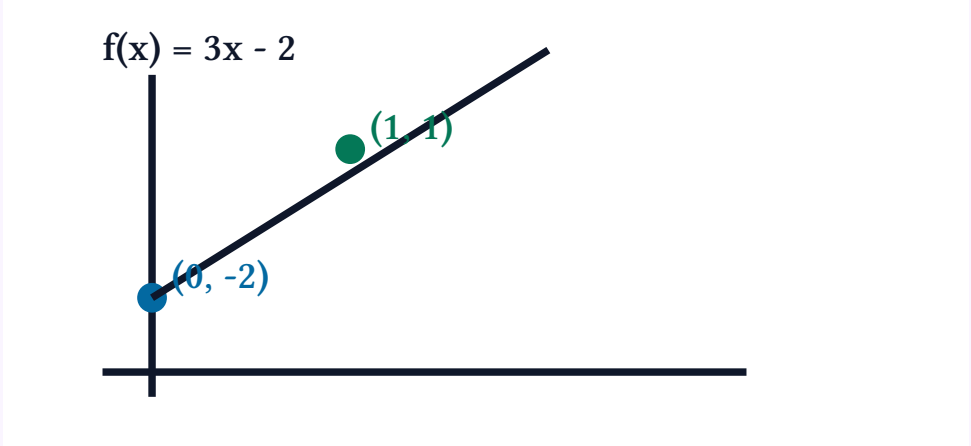
Point on the line: (-1, -5)

From an output back to the input

- Solve $g(t) = 15$ when $g(t) = 7 + t$.
- The equation $7 + t = 15$ gives $t = 8$.
- The input 8 produces the output 15.

Sketching f(x) = $3x - 2$

- The y-intercept is (0, −2), because f(0) = −2.
- The slope is 3, so another point is (1, 1).
- Draw the line through (0, −2) and (1, 1).



Using function notation

- The value $h(2)$ for $h(x) = 5 - 2x$ is $5 - 4 = 1$.
- Solving $h(x) = 1$ gives $5 - 2x = 1$, so $x = 2$.
- In two variables the rule is $y = 5 - 2x$.

Quick check

- The value f(4) for f(x) = $3x - 2$ is 10.
- Solving g(t) = 15 for g(t) = 7 + t gives t = 8.

Evaluating a function

- The value $f(-1) = -5$ for $f(x) = 3x - 2$.
- The graph of f is the line $y = 3x - 2$.