

Unit 9.3 Evaluating Functions NOTES

Evaluating Functions:

We have seen linear functions written in the slope-intercept form of $y = mx + b$. If we name a function f , we can write it using function notation: $f(x) = mx + b$.

The symbol $f(x)$ is another name for “y” and is read as “ f of x ”, or “the value of f at x ”. It does not mean “ f times x ”. We can also use other letters such as d or g to name a function. Functions can be represented by equations, tables, and graphs.

Evaluate a function represented by an equation:

Consider the function $g(x) = 8x + 2$. Evaluate the function when $x = 0$ and $x = -5$.

The values of g are the input values. To evaluate the function, we substitute x with the input values and calculate, resulting in the output values.

Given: $g(x) = 8x + 2$. Find $g(0)$ and $g(-5)$.

Solution:

$g(x) = 8x + 2$	Write original function.
$g(0) = 8(0) + 2$	Substitute 0 for x
$g(0) = 0 + 2$	Multiply
$g(0) = 2$	Simplify

Solution:

$g(x) = 8x + 2$	Write original function
$g(-5) = 8(-5) + 2$	Substitute -5 for x
$g(-5) = -40 + 2$	Multiply
$g(-5) = -38$	Simplify

We can also use expressions as our input values.

Given: $g(x) = 8x + 2$. Find $g(2x + 3)$

$g(x) = 8x + 2$	Write original function
$g(2x + 3) = 8(2x + 3) + 2$	Substitute “ $2x + 3$ ” for x
$g(2x + 3) = 16x + 24 + 2$	Distributive Property
$g(2x + 3) = 16x + 26$	Simplify