Function Notation

Find the range value for each of the corresponding domain value.

Evaluate $y = x^2 - 5$ for $x = -3$

Evaluate $r = -5d + 8$ for $d = 6$

Evaluate $y = |x| + 5$ for $x = -7$

You may see these functions written in **function notation** where the $y =$ is replaced with $f(x) =$. The two mean exactly the same thing but $f(x) =$ gives you more flexibility and more information.

Evaluate $f(x) = 3x - 5$ for $f(3)$

Evaluate $g(x) = 3^x$ for $g(4)$

Evaluate $f(h) = |h| - 4$ for $f(-3)$

Evaluate the following for the following functions: $f(x) = 9 - 4x$ and $g(x) = x^2 - 8$

$f(-2)$

$f(6)$

$g(-4)$

Evaluate the following for the following functions: $h(x) = |x + 4| - 5$ and $j(x) = 3^x$

$h(-10)$

$j(4)$

$h(11)$

On Your Own

Given $h(x) = \frac{x}{5} - 2$, find $h(-10)$, $h(5)$ and $h(25)$.

Does $h(1) + h(2) = h(3)$

EXAMPLES

State the domain and range of the function represented in the table.

x	$f(x)$
-2	8
-1	10
0	12
1	14
2	16

Make a table of values for the function $h(x) = x^2 - 9$. Then state the domain and range of the function.

x	$h(x)$
-2	
-1	
0	
1	
2	

Some Tough Ones

$j(4)+h(-2)$

$4h(-6)$

Function Notation

Find the range value for each of the corresponding domain value.

Evaluate $y = x^2 - 5$ for $x = -3$

$y = (-3)^2 - 5$

$y = 4$

Evaluate $r = -5d + 8$ for $d = 6$

$r = -5(6) + 8$

$r = -22$

Evaluate $y = |x| + 5$ for $x = -7$

$y = |-7| + 5$

$y = 12$

You may see these functions written in **function notation** where the $y =$ is replaced with $f(x) =$. The two mean exactly the same thing but $f(x) =$ gives you more flexibility and more information.

Evaluate $f(x) = 3x - 5$ for $f(3)$

$f(3) = 3(3) - 5$

$f(3) = 4$

(x, y)

Evaluate $g(x) = 3^x$ for $g(4)$

$g(4) = 3^4$

$g(4) = 81$

Evaluate $f(h) = |h| - 4$ for $f(-3)$

$f(-3) = |-3| - 4$

$f(-3) = -1$

Evaluate the following for the following functions: $f(x) = 9 - 4x$ and $g(x) = x^2 - 8$

$f(-2)$

$f(-2) = 9 - 4(-2)$

$f(-2) = 17$

$f(6)$

$f(6) = 9 - 4(6)$

$f(6) = -15$

$g(-4)$

$g(-4) = (-4)^2 - 8$

$g(-4) = 8$

Evaluate the following for the following functions: $h(x) = |x + 4| - 5$ and $j(x) = 3^x$

$h(-10)$

$h(-10) = |-10 + 4| - 5$

$h(10) = 1$

$j(4)$

$j(4) = 3^4$

$j(4) = 81$

$h(11)$

$h(11) = |11 + 4| - 5$

$h(11) = 10$

On Your Own

Given $h(x) = \frac{x}{5} - 2$, find $h(-10)$, $h(5)$ and $h(25)$.

$h(-10) = \frac{-10}{5} - 2$

$h(10) = 0$

$h(25) = \frac{25}{5} - 2$

$h(25) = 3$

$h(5) = \frac{5}{5} - 2$

$h(5) = -1$

Does $h(1) + h(2) = h(3)$

$\frac{1}{5} - 2 + \frac{2}{5} - 2 = \frac{3}{5} - 2$

$-1\frac{4}{5} + -1\frac{3}{5} = -1\frac{2}{5}$

$-3\frac{2}{5} \neq -1\frac{2}{5}$

EXAMPLES

State the domain and range of the function represented in the table.

x	$f(x)$
-2	8
-1	10
0	12
1	14
2	16

Domain: $\{-2, -1, 0, 1, 2\}$

Range: $\{8, 10, 12, 14, 16\}$

Make a table of values for the function $h(x) = x^2 - 9$. Then state the domain and range of the function.

x	$h(x)$
-2	-5
-1	-8
0	-9
1	-8
2	-5

Domain: $\{-2, -1, 0, 1, 2\}$

Range: $\{-9, -8, -5\}$

Some Tough Ones

Recall $h(x) = |x + 4| - 5$ $\quad j(x) = 3^x$

$j(4) + h(-2)$

$(3^4) + (|-2+4|-5)$

$81 + (2 - 5)$

$81 - 3$

78

$4h(-6)$

$4 \cdot (|-6+4|-5)$

$4(-3)$

-12