Do Now

Evaluate the following:

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

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

$5 + 2(4) - 3$

$5 + 8 - 3$

$13 - 3$

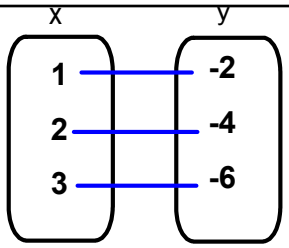
10

Nov 12-1:49 PM

1) Domain: {1, 2, 3}

Range: {-2, -4, -6}

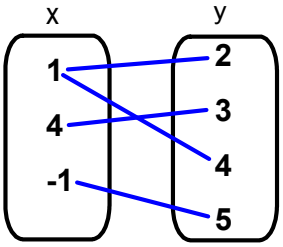
Function? Yes



2) Domain: {1, 4, -1}

Range: {2, 3, 4, 5}

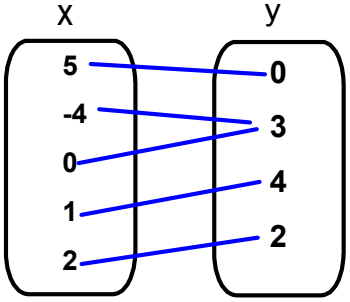
Function? No



3) Domain: {5, -4, 0, 1, 2}

Range: {0, 3, 4, 2}

Function? Yes



HW Answers

4) No

5) Yes

6) Yes

7) No

Oct 8-5:36 PM

Function Notation

$f(x)$

$y = f(x)$

Output — Rule — Input

Since functions are rules that convert **inputs** (typically x-values) into **outputs** (typically y-values), it makes sense that they must have their own **notation** to indicate what the rule is, what the input is, and what the output is.

$y = 2x - 8$ OR $f(x) = 2x - 8$

$g(x) = 2x - 8$

Nov 12-1:57 PM

Evaluating Functions

$f(x) = x + 7$ (5, 12)

a. $f(5) = 5 + 7$

$f(5) = 12$

b. $f(-1) = (-1) + 7$

$f(-1) = 6$

$(-1, 6)$

$f(x) = 6$

$f(x) = -x^2 + 6x - 4$

a. $f(-3) = -(-3)^2 + 6(-3) - 4$

$-9 - 18 - 4$

$f(-3) = -31$

b. ~~$f(-1)$~~

b. $f(-1) = -(-1)^2 + 6(-1) - 4$

$f(-1) = -1 - 6 - 4$

$f(-1) = -11$

Nov 12-2:01 PM

$g(x) = \frac{x-6}{2}$ $h(x) = \sqrt{2x+1}$

$g(20) = \frac{20-6}{2}$

$g(20) = \frac{14}{2}$

$g(20) = 7$

$g(0) = \frac{0-6}{2}$

$g(0) = \frac{-6}{2}$

$g(0) = -3$

$h(4) = \sqrt{2(4)+1}$

$h(4) = \sqrt{8+1}$

$h(4) = \sqrt{9}$

$h(4) = 3$

$h(0) = \sqrt{2(0)+1}$

$h(0) = \sqrt{0+1}$

$h(0) = \sqrt{1}$

$h(0) = 1$

Nov 20-6:49 AM

Evaluating Functions In Word Problems

Anthropologists use the length of certain bones of human skeleton to estimate the height of the living person. One of these bones is the femur. To estimate the height in centimeters of a female with a femur length of x, the function $h(x) = 61.41 + 2.32x$ can be used.

a. Find $h(46)$

$h(46) = 61.41 + 2.32(46)$

$h(46) = 61.41 + 106.72$

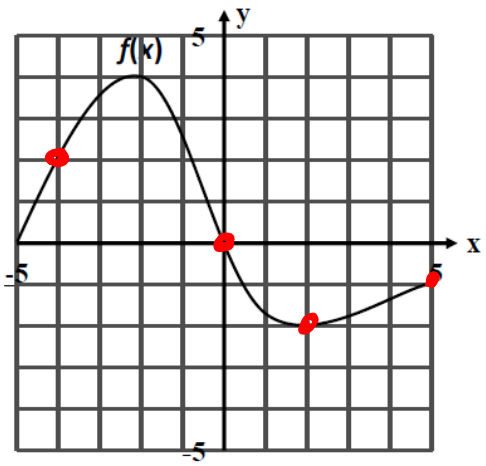
$h(46) = 168.13$

b. What does this mean?

A female who has a femur 46 cm is approx 168.13 cm tall

Nov 12-2:05 PM

Evaluating Functions From A Graph



a. f(-4) = 2
x = -4 y = ?

b. f(0) = 0

c. f(2) = -2

d. f(5) = -1

e. f(x) = -2 → y-value x = 2

Nov 14-11:02 AM

4. Given $f(x) = -2x + 10$

Find f(2) = 6

5. Given $h(x) = x^2 - 8x$

Find h(-4) = 48

$h(-4) = (-4)^2 - 8(-4)$
$16 + 32$

6. Given $g(x) = 4x - 7$

Find g(-9) = -43

7. Given $h(x) = 5 - 9x$

Find h(8) = -67

8. Given $f(x) = 2x^2 + 5x - 17$

Find f(-1) = -20

$2(-1)^2 + 5(-1) - 17$
$2 - 5 - 17$

Nov 20-6:46 AM