

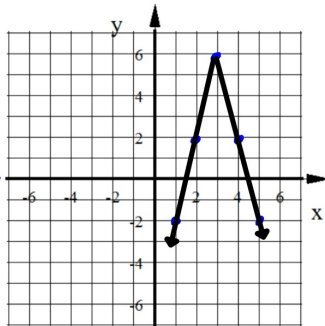
The graph of an equation containing $|x|$ or $|x - |$

always turns out to be a **V-SHAPE**

These are called Absolute Value Equations

1. $y = -4|x - 3| + 6$

X	Y
1	-2
2	2
3	6
4	2
5	-2



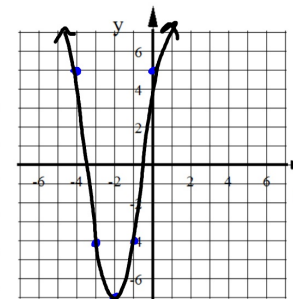
The graph of an equation containing x^2 or $(x -)^2$

always turns out to be a **PARABOLA**

These are called Quadratic Equations

2. $y = 3x^2 + 12x + 5$

X	Y
-4	5
-3	-4
-2	-7
-1	-4
0	5



$$3(-4)^2 + 12(-4) + 5$$
$$48 - 48 + 5$$

Section 5.2 - Relations and Functions Review

Relation: a set of ordered pairs.

Domain: a set of x-coordinates (first coordinate) of the ordered pairs.

Range: a set of y-coordinates (second coordinate) of the ordered pairs.

Rules for writing domain and range:

1.) listed from least to greatest.

2.) no repeating values.

Example 1: Find the domain and range of the relation represented by the data in the table.

Not a funct.
 $\{(4,3), (-2,1), (-1,3), (4,-2), (-1,1)\}$

D: $\{-2, -1, 4\}$

R: $\{-2, 1, 3\}$

Your Turn 1: Find the domain and range of the relation represented by the data in the table.

$\{(18,4.25), (20,4.40), (21,4.25), (14,5), (18,4.85)\}$

Not A Funct. D: $\{14, 18, 20, 21\}$

R: $\{4.25, 4.40, 4.85, 5\}$

Function:

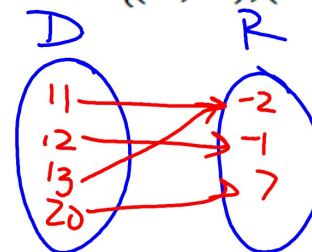
On a graph Set of points
pass VLT NO repeat
on x

Example 2: Using a Mapping Diagram

Determine whether the relation is a function

yes

$\{(11, -2), (12, -1), (13, -2), (20, 7)\}$



Your Turn 2: Using a Mapping Diagram

Determine whether the relation is a function

$\{(-2, -1), (-1, 0), (6, 3), (-2, 1)\}$

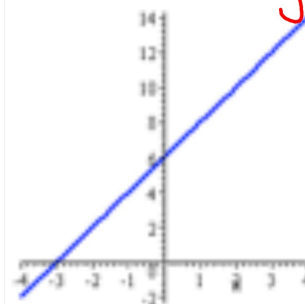
Not
A Funct

Example 3: Using the Vertical-Line Test

Determine if the following graph is a function?

Explain

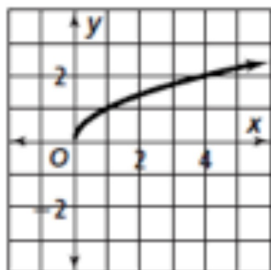
yes



Your Turn 3: Using the Vertical-Line Test

Determine if the following graph is a function?

Explain

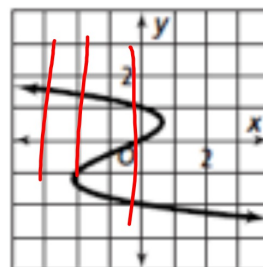


yes.

Example 4: Using a Vertical-Line Test

Determine if the following graph is a function?

Explain

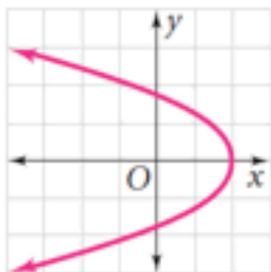


NO DOES
NOT PASS
VLT

Your Turn 4: Using a Vertical-Line Test

Determine if the following graph is a function?

Explain



$y = x^2$
NOT A Funct

A function rule:

$f(x)$

Example 5: Evaluate $f(x) = -3x - 10$ for $x = 6$

$$f(6) = -3(6) - 10$$

$$(6, -28) = -28$$

Your Turn 5: Evaluate $f(x) = 2x^2 + 1$ for $x = 4$

$$f(4) = 2(4)^2 + 1$$
$$= 33$$

Example 6: Evaluate $f(x) = -3x^2 + 5$ for the domain

$\{-3, 1, 4\}$

$$f(-3) = -3(-3)^2 + 5$$
$$= -22$$

$$f(1) = -3(1)^2 + 5$$
$$= +2$$

$$f(4) = -3(4)^2 + 5$$
$$= -43$$

Your Turn 6: Evaluate $f(x) = x - 6$ for the

domain $\{-2, 0, 5\}$

$$f(-2) = -2 - 6$$
$$= -8$$

$$f(0) = 0 - 6$$
$$= -6$$

$$f(5) = 5 - 6$$
$$= -1$$

Evaluating Functions & Writing Domain/Range Notes

Example 1) Write the following function in function notation

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

$$y = 2x - 4$$

Your Turn 1) Write the following function in function notation

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

$$y = -3x + 5$$

Example 2) Evaluate the following function

If $f(x) = -2x + 5$, then find $f(4)$

$$\begin{aligned} x &= 4 \\ f(4) &= -2(4) + 5 \\ &= -3 \end{aligned}$$

Your Turn 2) Evaluate the following function

If $f(x) = 4x - 1$, then find $f(-2)$

$$\begin{aligned} f(-2) &= 4(-2) - 1 \\ &= -9 \end{aligned}$$

Example 3) Evaluate the following function

If $f(x) = x^3 + 5(x - 2)$, then find $f(-1)$

$$\begin{aligned} f(-1) &= (-1)^3 + 5(-1 - 2) \\ &= -1 - 15 = -16 \end{aligned}$$

Your Turn 3) Evaluate the following function

If $f(x) = 3x^2 - 2(x + 4)$, then find $f(3)$

$$\begin{aligned} f(3) &= 3(3)^2 - 2(3 + 4) \\ &= 27 - 14 = 13 \end{aligned}$$

Example 4) State the domain and range of the following relation

$$\{(4, 0), (-2, 4), (6, -1), (-4, 0)\}$$

$$D: \{-4, -2, 4, 6\}$$

$$R: \{-1, 0, 4\}$$

Your Turn 4) State the domain and range of the following relation

$\{(-2,-9), (3,2), (5,4), (8,-3), (3,5), (1,7)\}$

$D: \{-2, 1, 3, 5, 8\}$
 $R: \{-9, -3, 2, 4, 5, 7\}$

Hwk #28 - Practice 5-2 Worksheet

IXL #10 - K.11 & L.1 due today at 6pm!