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

always turns out to be a V-SHAPE

These are called Absolute Value Equations

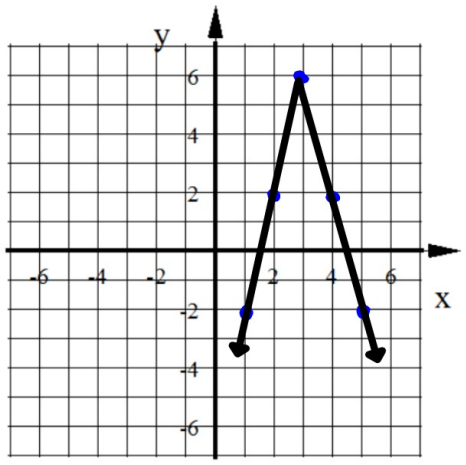
The graph of an equation containing x^2 or $(x\ )^2$

always turns out to be a PARABOLA

These are called Quadratic Equations

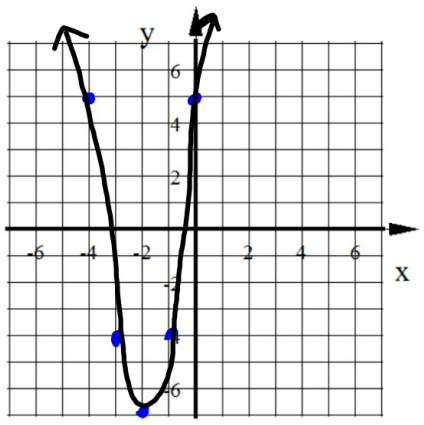
1. $y = -4|x - 3| + 6$

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



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

X	Y
−4	5
−3	-4
−2	-7
−1	-4
0	5



$48 - 48 + 5$

$27 - 36 + 5$

$12 - 24 + 5$

$3 - 12 + 5$

Hwk #28 answers

Alg 1
Mon. 11/12/18

2. *Domain* : $\{-3,-2,0,4\}$ *Range* : $\{6,7,8,22\}$
4. *Domain* : $\{1\}$ *Range* : $\{-7,0,5,6.1,10\}$
24. *Range* : $\{-8,-2,18\}$
28. Not a Function
29. Is a Function *Domain* : $\{-4,-1,0,3\}$
Range : $\{-4\}$
30. This is NOT a function.
For an age of 4 yrs there is two different lengths.
32. a. $\{-300,-210,0,72\}$
b. Domain is # cameras sold and Range is the profit.
38. Yes 39. No 40.Yes 41. a. b. c. d.
44. 18

Find the range of the function rule $y = 5x - 2$ for each domain.
24. $\{-1.2, 0, 4\}$

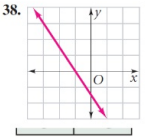
2. **4.** $\{(1,0),(1,5),(1,-7),$ **30. Iguanas** Use the
its age? Explain.

Def 32. a. Profit A store bought a case of dis

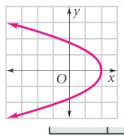
1 **Use the vertical-line test to determine whether each graph a function.**

2

38.



39.



41. Telephone Bill The cost of a long-distance telephone call c is a function of the time spent talking t in minutes. The rule $c(t) = 0.09t$ describes the function for one service provider. At the right, a student has calculated how much a 2-hour phone call wou

$c = 0.09 \times 2$
$= 0.18$

a. Writing Why does th seem unreasonable?
b. Error Analysis What
c. How much would it cost to make a 2-hour phone call?
d. Critical Thinking What set of numbers is reasonable for the domain values? For the range values?

44. $g(3) + f(4)$

Use the functions $f(x) = 2x$ and $g(x) = x^2 + 1$ to find the value of each expression.

Section 5.2 - Relations and Functions Review

Relation: a set of ordered pairs.

(x, y)

$b = 2a - 4$

(a, b)

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.

$$\{(4,3),(-2,1),(-1,3),(4,-2),(-1,1)\}$$

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.

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

D: 14, 18, 20, 21

R: 4.25, 4.40, 4.85, 5

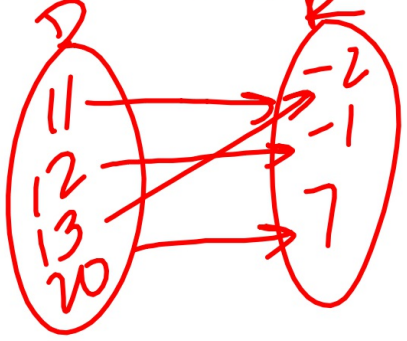
Function: a relation that assigns exactly one value in the range to each value in the domain.

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

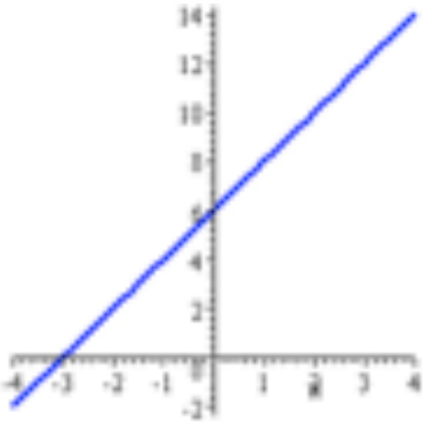
$$\{(-2,-1),(-1,0),(6,3),(-2,1)\}$$

$X = -2$
repeats
Not a funct.

Example 3: Using the Vertical-Line Test

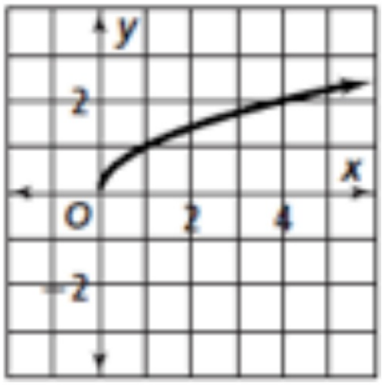
Determine if the following graph is a function?
Explain

yes.



Your Turn 3: Using the Vertical-Line Test

Determine if the following graph is a function? Explain

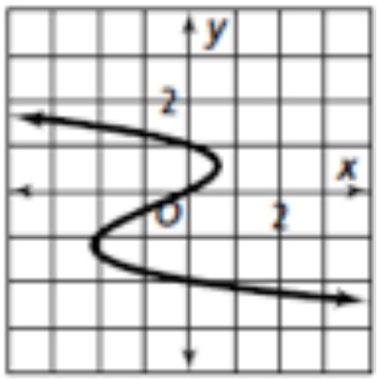


yes

$y = \sqrt{x}$

Example 4: Using a Vertical-Line Test

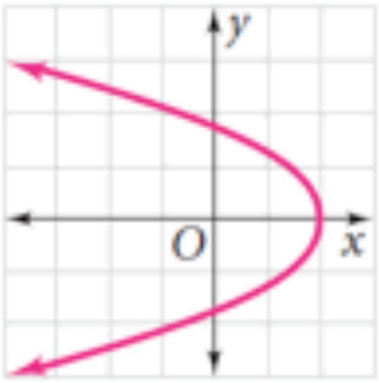
Determine if the following graph is a function? Explain



not a funct.

Your Turn 4: Using a Vertical-Line Test

Determine if the following graph is a function?
Explain



Not a function

A function rule:

an eqn. that describes a function

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

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

$f(6) = -28$

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

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

$f(4) = 33$

Example 6: Evaluate $f(x) = -3x^2 + 5$ for the domain $\{-3,1,4\}$

$\{-22, 2, -43\}$

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

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

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

Your Turn 6: Evaluate $f(x) = x - 6$ for the domain $\{-2,0,5\}$

$\{-8, -6, -1\}$

$f(-2) = -8$

$f(0) = -6$

$f(5) = -1$

Evaluating Functions & Writing Domain/Range Notes

Example 1) Write the following function in function notation

$y = 2x - 4$

$f(x) = 2x - 4$

Your Turn 1) Write the following function in function notation

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

Example 2) Evaluate the following function

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

$f(4) = -2(4) + 5$ $x = 4$

$= -3$

Your Turn 2) Evaluate the following function

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

$f(-2) = 4(-2) - 1$

$= -9$

Example 3) Evaluate the following function

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

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

$= -1 - 15$

$= -16$

Your Turn 3) Evaluate the following function

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

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

$=27-14$

$=13$

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

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

Hwk #29 - Practice 5-2 Worksheet

- Show YOUR work on a separate sheet of paper.
- IXL #11 - Q.1 & Q.2 due Friday at 4pm!