Functions in Algebra 1:

Linear Functions:

EQ: $y = mx + b$

Graph: Line

Absolute Value Functions:

EQ: $y = a|x - h| + k$

Graph: V-Shape

Quadratic Functions:

EQ: $y = ax^2 + bx + c$
or
$y = a(x - h)^2 + k$

Graph: Parabola

Graphing Linear Functions.

Slope-Intercept Form:

$y = mx + b$

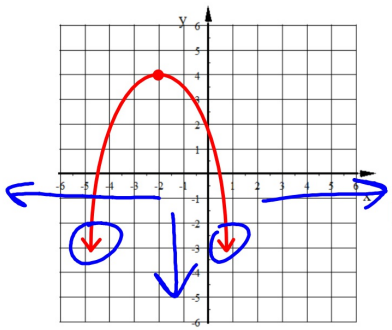
y-intercept

slope = $\frac{\text{rise}}{\text{run}}$

Steps to graph this eq:

1. Plot the y-int.
2. Use the slope to find more points.

1.



Domain: $(-\infty, \infty)$ $\mathbb{R}$ All real #s.

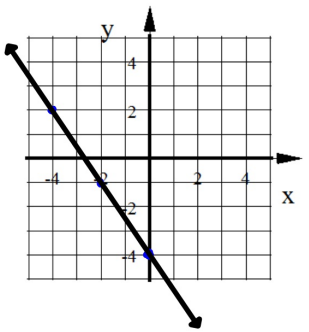
Range: $y \leq 4$ $(-\infty, 4]$

2. $y = -\frac{3}{2}x - 4$

D: $\mathbb{R}$

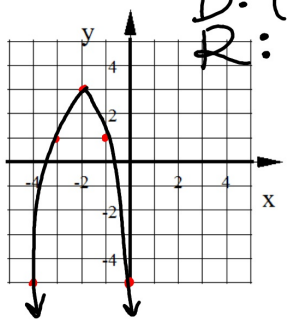
R: $\mathbb{R}$

$(-\infty, \infty)$



3. $y = -2x^2 - 8x - 5$

x	y
0	-5
-1	1
-2	3
-3	1
-4	-5

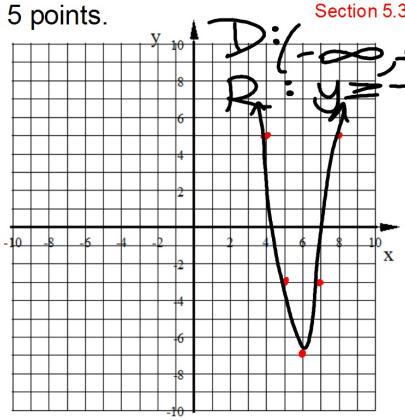


D: $(-\infty, \infty)$
R: $y \leq 3$

Graph this function, use at least 5 points.

$y = 3(x-6)^2 - 7$

x	y
4	-4
5	-7
6	-4
7	5
8	

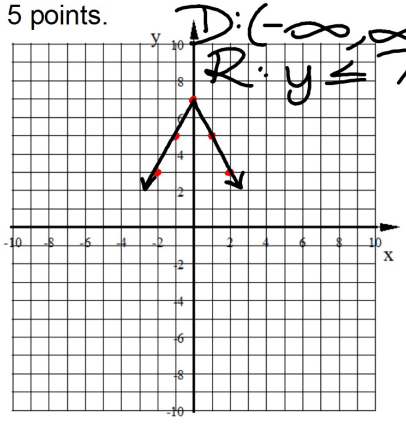


D: $(-\infty, \infty)$
R: $y \geq -7$

Graph this function, use at least 5 points.

$f(x) = -2|x| + 7$

x	y
-2	3
-1	5
0	7
1	5
2	3

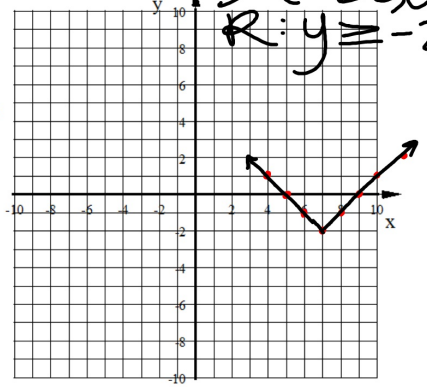


D: $(-\infty, \infty)$
R: $y \leq 7$

Graph this function, use at least 5 points.

$y = |x-4| - 5$

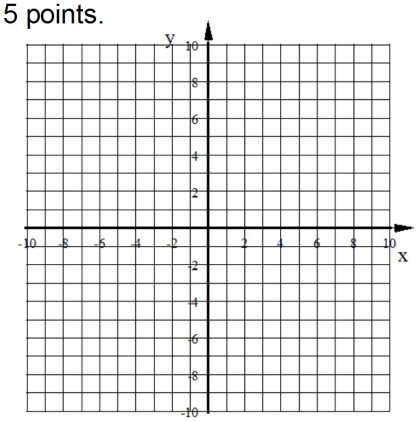
x	y
7	-2
8	-1
9	0
10	1
11	2
4	
5	
6	



D: $(-\infty, \infty)$
R: $y \geq -2$

Graph this function, use at least 5 points.

$y = \frac{1}{2}|x+1|+3$



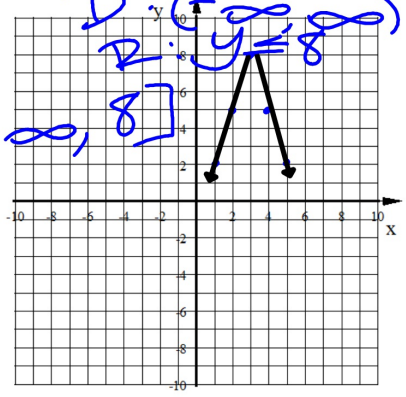
$y = -3|x-3|+8$

x	y
1	2
2	5
3	8
4	5
5	2

D: $(-\infty, \infty)$

R: $y \leq 8$

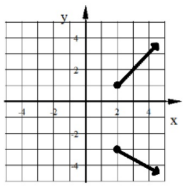
$(-\infty, 8]$



1. Write the domain and range of each graph.

Quiz Review

a.

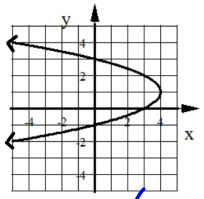


Domain: $x \geq 2$

Range: $y \leq -3$ or $y \geq 1$

$[2, \infty)$

b.



Domain: $(-\infty, 4]$

Range: $(-\infty, \infty)$

$x \leq 4$

3. Is each relation a function?

a) $(-6,4),(-2,6),(1,4),(5,-1),(2,5)$

yes

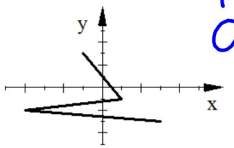
no x repeats

b) The table below

X	Y
8	6
−3	−9
2	−7
−3	4

NO

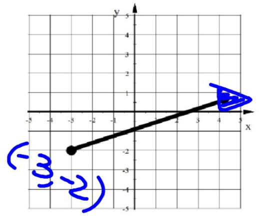
c) The graph below



NO doesn't pass VLT

4. State the domain and range of each graph.

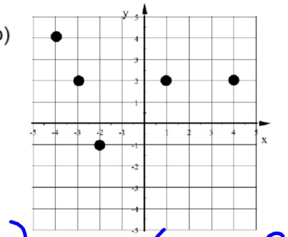
a)



Domain: $x \geq -3$ $[-3, \infty)$

Range: $y \geq -2$ $[-2, \infty)$

b)



Domain: $\{-4, -3, -2, 1, 4\}$

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

5. Use these two functions: $h(m) = 3m^2 - 10$ $w(c) = 4c - 1$

a) Find $h(-4)$

$= 3(-4)^2 - 10$

$= 38$

b) Find c if $w(c) = 25$

$25 = 4c - 1$

$26 = 4c$

$c = 6.5$

c) Find $10h(2) + w(2)$

$10 \cdot (2) + 7$

$20 + 7$

$= 27$

Use what you know about each equation to state what the shape of the graph will be and, if applicable, which way it opens.

$y = 3x^2 + 6x + 1$ up ∪ pos.

$y = -6x + 1$ \ neg

$y = -2|x + 1| - 5$ ∧ down neg

IXL #11 - Q.1 & Q.2 due tomorrow by 6pm!