Point-Slope Form:

$y - 3 = 2(x + 4)$

Slope of this line = 2

$$\left(x - x_1 \right)$$
$$y - y_1$$

This line passes through the point $(-4, 3)$

$y - 3 = 2(x + 4)$ **Point-Slope Form** the point used to write this equation is still $(-4,3)$

Could be written as: $y = 2(x + 4) + 3$

Now this looks a lot like the equation of an Absolute Value

The vertex is $(-4,3)$ just like the line above passes through $(-4,3)$

Absolute Value Equations:

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

Vertex: (h, k)

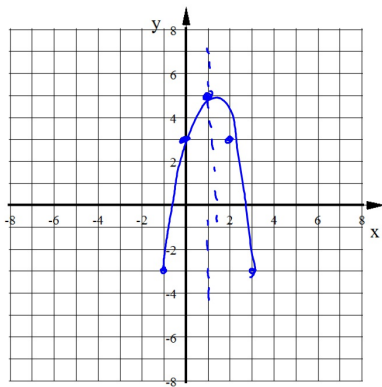Slope of the sides: $\pm a$

V-shape Opens:
Up if a is pos
Down if a is neg

$y = 2|x + 4| - 9$ Vertex: $(-4, -9)$

This could be written as:

$y + 9 = 2|x + 4|$

Top Left
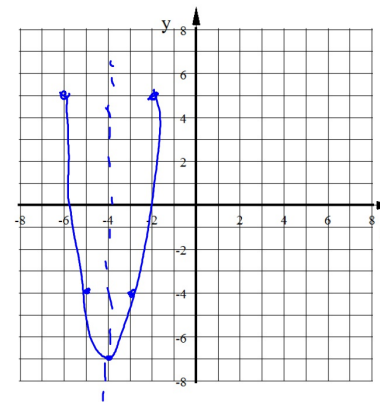
$$y = -2(x - 1)^2 + 5$$

What will this graph look like?
parabola opens down

What will the vertex be? vertex
1 RT 5 up (1, 5)

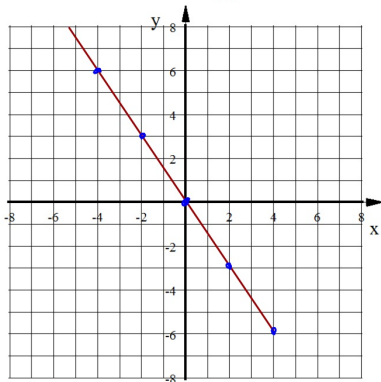**What numbers would you use in a table to find the rest of the graph?**

x	y
2	3
3	-3

Top Right

$$y = 3(x + 4)^2 - 7$$

4 left 7 down

Vertex

$(-4, -7)$

X	Y
-5	-4
-6	5

Bottom Left

a) $y = -\dfrac{3}{2}x$

X	Y	$\dfrac{Y}{X}$
-4	6	-1.5
-2	3	-1.5
2	-3	-1.5
4	-6	-1.5
6	-9	-1.5

Constant Ratio

Bottom Right

b) $y = \dfrac{1}{4}x - 3$
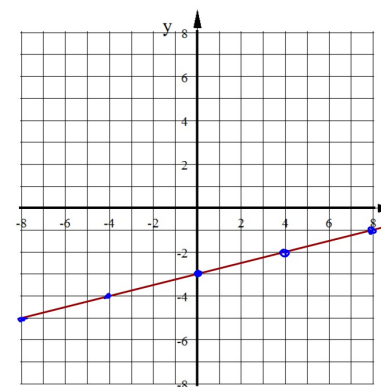
X	Y	$\dfrac{Y}{X}$
8	-1	-.125
4	-2	-.5
-4	-4	1
-8	-5	0.625
16	1	0.0625

3. If the ratio of $\frac{Y}{X}$ is constant the function is called Direct Variation.

a) Which of these equations is Direct Variation?

$$A \qquad y = -\tfrac{2}{3}x$$

b) What is the characteristic of the graph of a Direct Variation?

Line passes through the origin

c) All Direct Variation Functions have a Variation Constant. What is the Variation Constant of the Direct Variation Function you identified in part a)?

$$K = -1.5$$

d) How is the Variation Constant related to the graph?

slope