

Transformations

Objective:

- ❖ Explain the changes made to a graph by transformations
- ❖ To be able to label and graph a function
- ❖ To be able to look at a graph and write the equation.
- ❖ Given a set of transformations write the equation

1

Vertex form

Describe the transformations

- $y = a(x - h)^2 + k$
- $y = a|x - h| + k$

Where 'a' is the stretch, 'h' is the shift right of left, a negative sign in front of 'a' indicates a reflection, and 'k' is the shift up or down.

2

Describe the transformations:

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

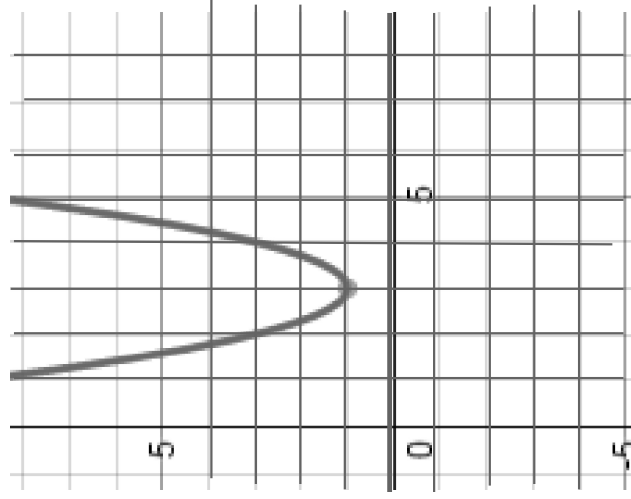
2. $h(x) = -|x| + 5$

3. $f(x) = -(x + 2)^2$

3

Given the graph write and equation

$$y = a(x - h)^2 + k$$

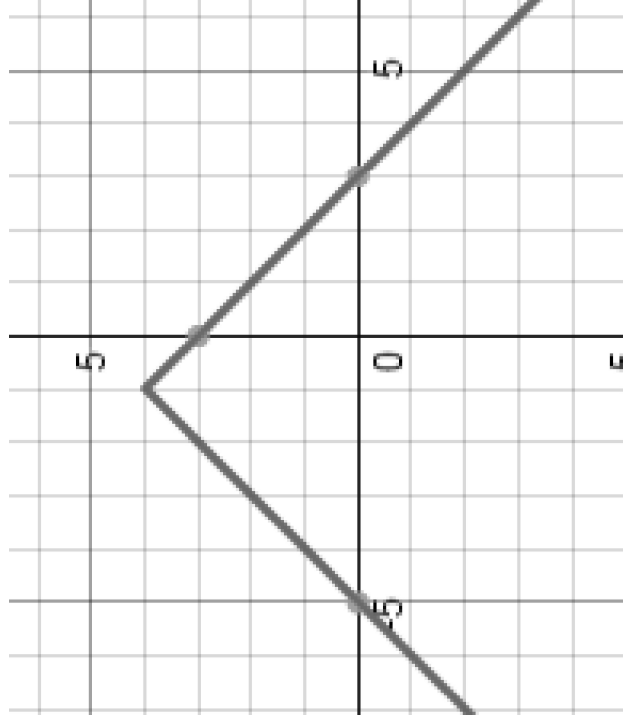


XL tip: How do you tell if a graph is wide or narrow?

4

Given the graph write and equation

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



5

Let $f(x) = |x|$. Write a new function that translates $f(x)$ as described:

1. Shifted 7 units to the right and 3 units up
2. Stretch factor by 6, reflected across the x-axis and 2 units down
3. Stretch factor of $1/2$, shifted 2 units left

6