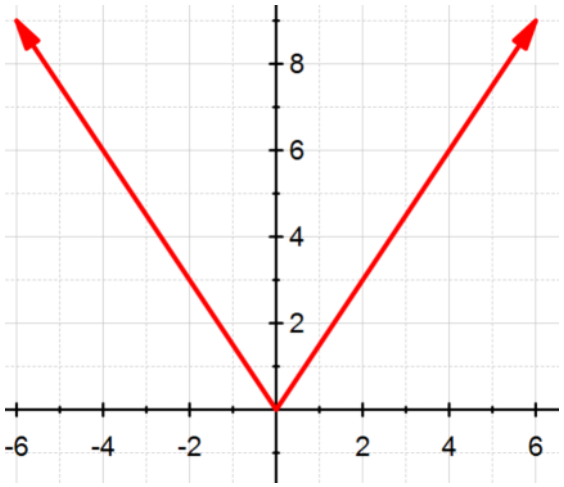
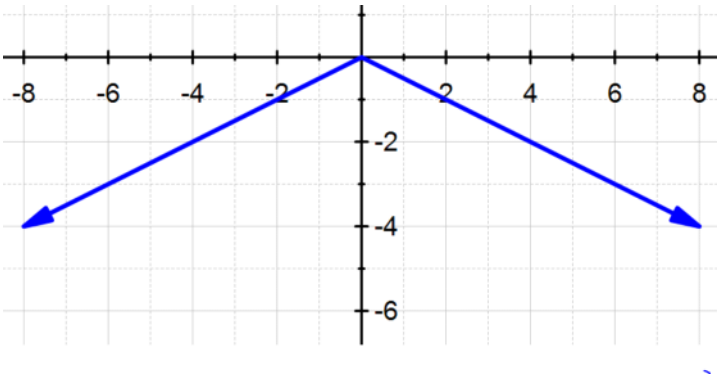
5.4 Transformations of Absolute Value Functions

Monday, September 23, 2019 7:46 AM

Warm Up

For the two graphs below, find the function shown in the graph and the **Domain** and **Range** of each.





Essential Question

How do constants affect the graphs of absolute value functions?

Goal: "I can. . .

Graph and analyze transformations of absolute value functions.."

What do we know so far?

What is the difference of the y values for the functions?

What is the differences in the **Domain** and **Range** of the functions?

How do the graphs differ?

$f(x) = |x|$ $g(x) = 2|x|$ $h(x) = -1|x|$

X	Y

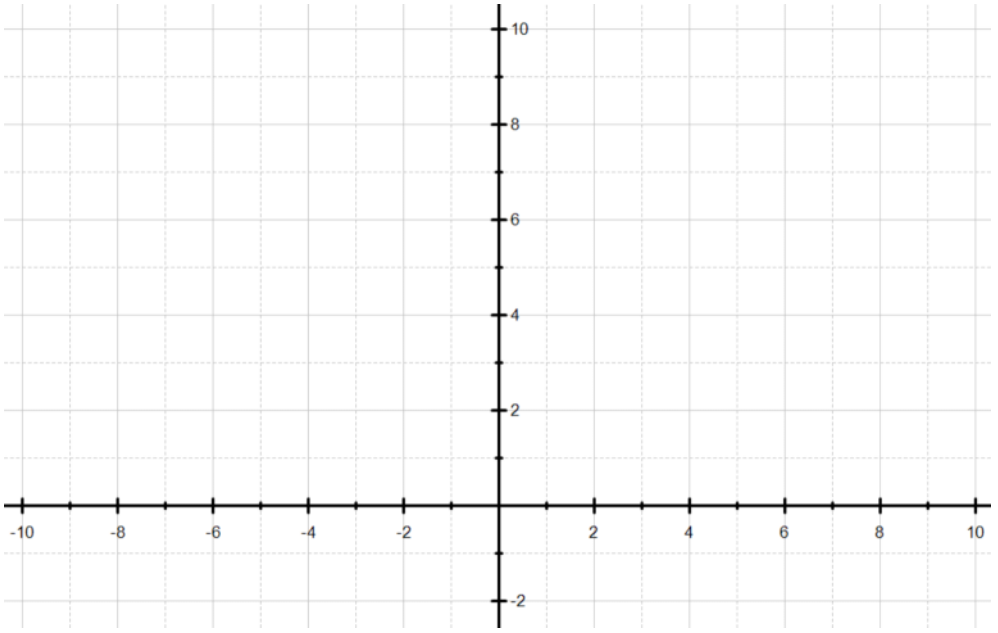
X	Y

X	Y

What does adding a constant at the end do to the graph?

What does adding a constant inside the brackets do to the graph?

$f(x) = |x|$ $g(x) = |x| + 5$ $h(x) = |x - 5|$



What we need to know:

$g(x) = a|x - h| + k$

a: h: k:

Example 1

For each function, identify the vertex and axis of symmetry.

$p(x) = |x| + 3$ $g(x) = |x| - 2$

Example 2

For each function, identify the vertex and axis of symmetry.

$m(x) = |x - 3|$ $t(x) = |x + 2|$

Example 3

For each function, identify the vertex and axis of symmetry.

$g(x) = |x - 1| - 3$

$j(x) = |x + 2| + 6$

Example 4

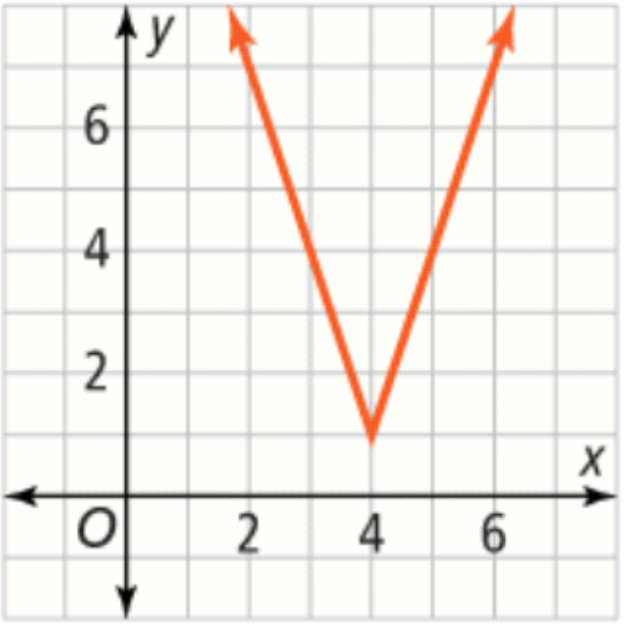
Compare the graph of each function with the parent function $f(x) = |x|$.

$h(x) = 3|x|$

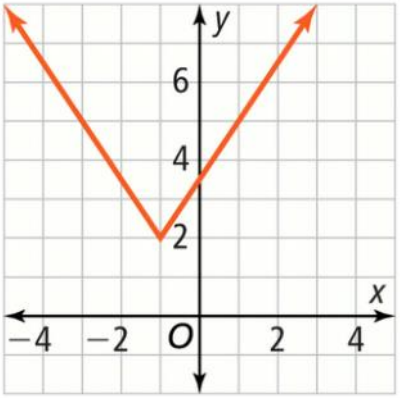
$p(x) = -\frac{1}{3}|x|$

Example 5

How can you use the constants a, h, and k to write a function given its graph?



Write a function for the graph shown.



Write the function of the graph after a translation 1 unit right and 4 units up.

---

https://tinyurl.com/smew329

Homework

Pg. 207
16, 18, 20, 22-27, 29, 31, 35