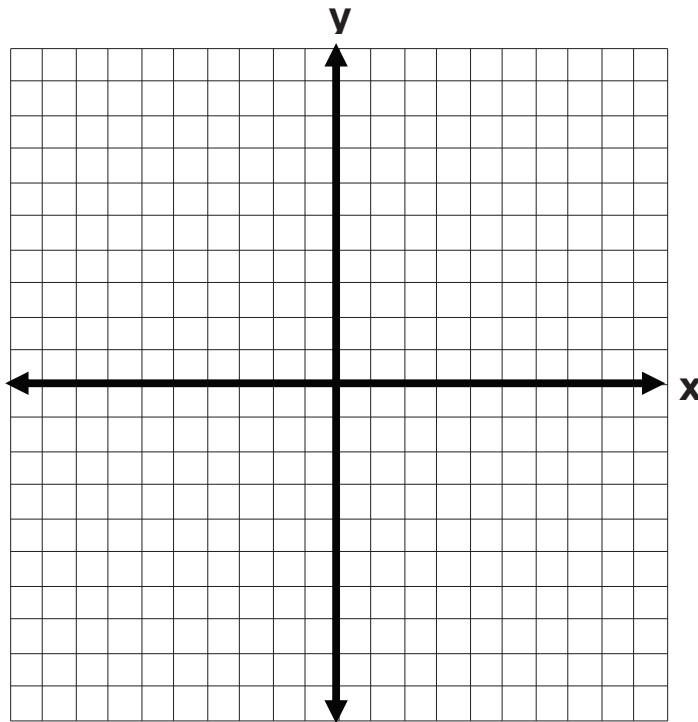


# Graphic Organizer #1: ABSOLUTE VALUE FUNCTIONS

Parent Function:  $f(x) = |x|$

$f(x) =  x $	
x	f(x)
-6	
-4	
-2	
0	
2	
4	
6	



Describe:

## VOCABULARY

Absolute Value Behavior    Domain Minimum intercepts (zeros)    Range y-intercept    Intervals (Increasing and Decreasing) Maximum    End Vertex    Parent Graph    Function Notation    x-

x-intercepts (zeros)

Domain	Range

y-intercept

Intervals of Increase/Decrease

End Behavior

Max or Min

## Graphic Organizer #2: ABSOLUTE VALUE FUNCTIONS

### Vertical Shift

Function:

Color

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

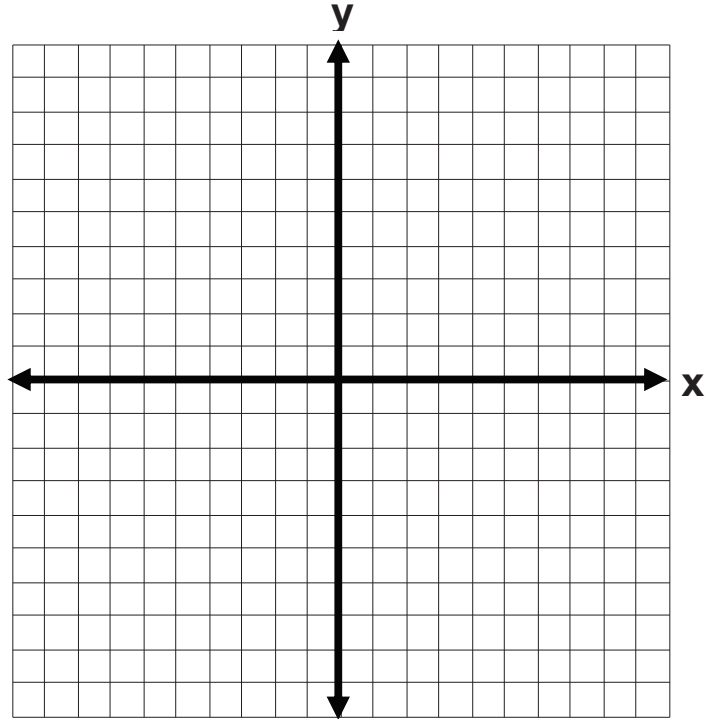
$$f(x) = |x| + 1$$

$$f(x) = |x| + 4$$

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

$$f(x) = |x| - 5$$

$$f(x) = |x| - 1$$



Description:

# Graphic Organizer #3: ABSOLUTE VALUE FUNCTIONS

## Reflection

Function:

Color

$$f(x) = |x|$$

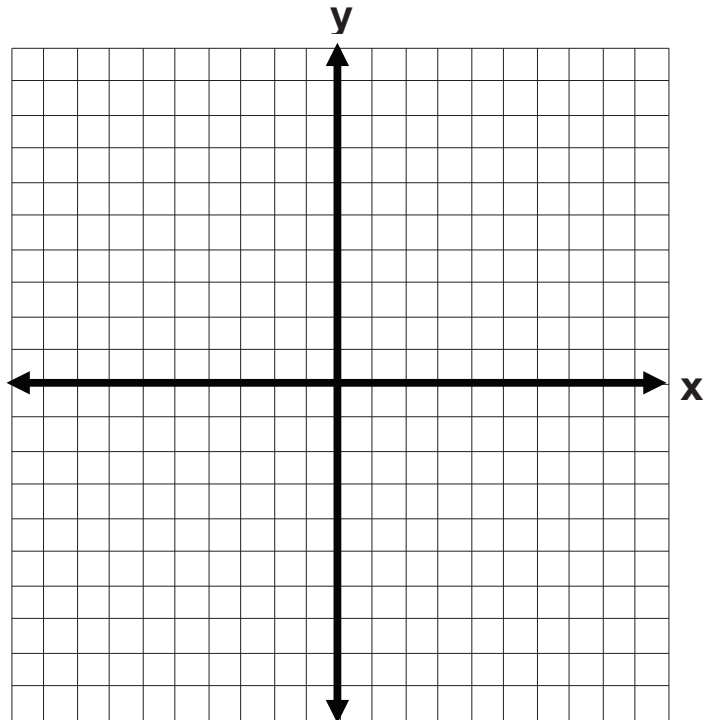
$$f(x) = -|x|$$

$$f(x) = |x| + 4$$

$$f(x) = -|x| + 4$$

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

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



Description:

## Graphic Organizer #4: ABSOLUTE VALUE FUNCTIONS

### Stretch

Function:

Color

$$f(x) = |x|$$

$$f(x) = 2|x|$$

$$f(x) = 3|x|$$

$$f(x) = 4|x|$$

$$f(x) = 5|x|$$

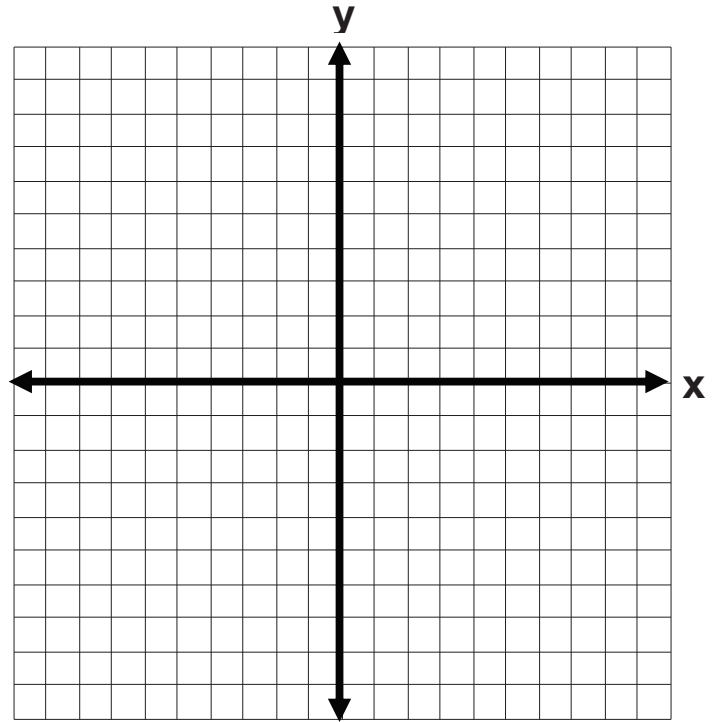
$$f(x) = -|x|$$

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

$$f(x) = -3|x|$$

$$f(x) = -4|x|$$

$$f(x) = -5|x|$$



How does the coefficient affect the graph?

What pattern do you notice for both the positive and the negative?

Rule:

## Graphic Organizer #4 Cont: ABSOLUTE VALUE FUNCTIONS

Shrink

Function:

Color

$$f(x) = |x|$$

$$f(x) = \frac{1}{2} |x|$$

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

$$f(x) = \frac{1}{4} |x|$$

$$f(x) = \frac{1}{5} |x|$$

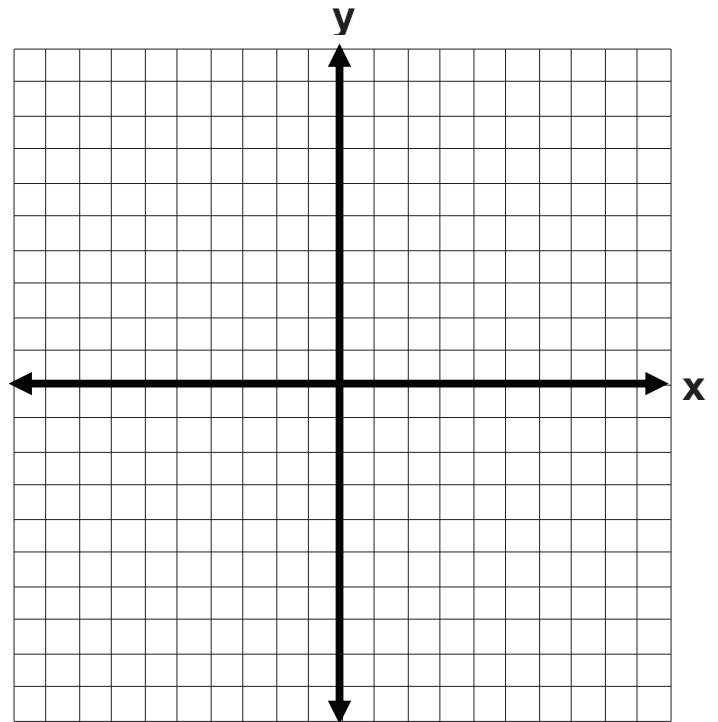
$$f(x) = -|x|$$

$$f(x) = -\frac{1}{2} |x|$$

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

$$f(x) = -\frac{1}{4} |x|$$

$$f(x) = -\frac{1}{5} |x|$$



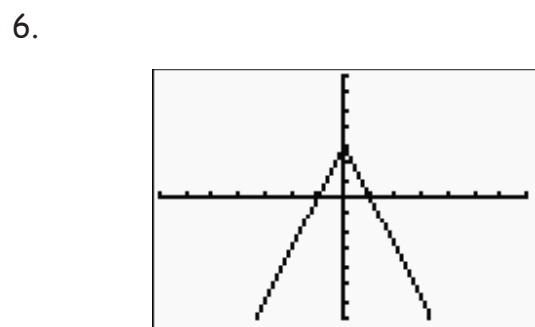
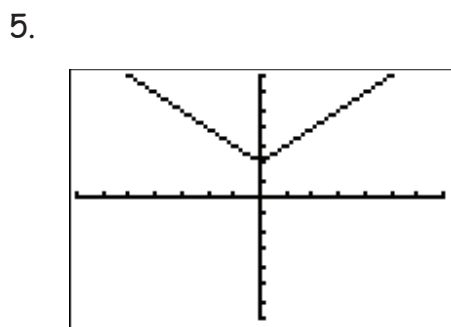
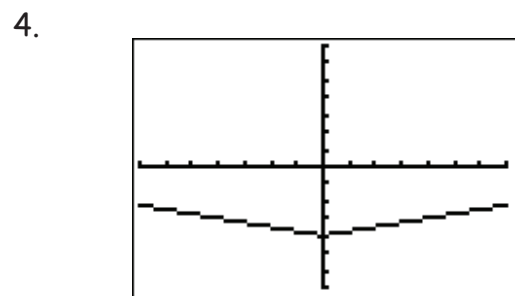
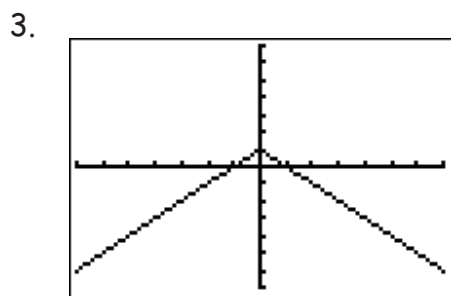
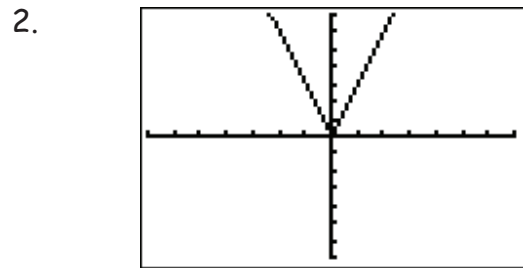
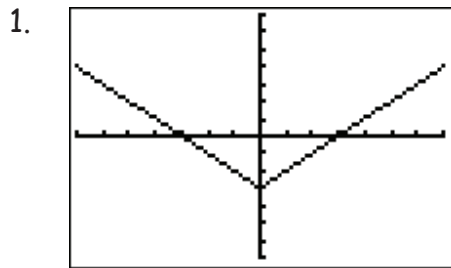
How does the coefficient affect the graph?

What pattern do you notice for both the positive and the negative?

Rule:

### ABSOLUTE VALUE FUNCTIONS

Match the graph of each function (1-6) with the equation of each function (a-f).



A.  $f(x) = -|x| + 1$

D.  $f(x) = -3|x| + 3$

B.  $f(x) = \frac{1}{4}|x| - 4$

E.  $f(x) = 3|x|$

C.  $f(x) = |x| - 3$

F.  $f(x) = |x| + 2$