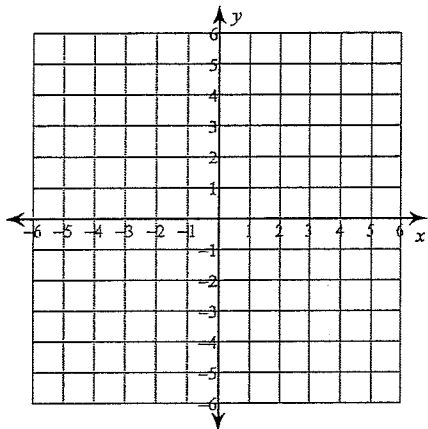


13.3

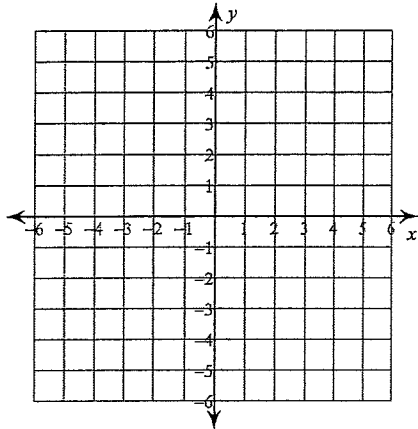
### Graphing Absolute Value Functions

Graph each equation.

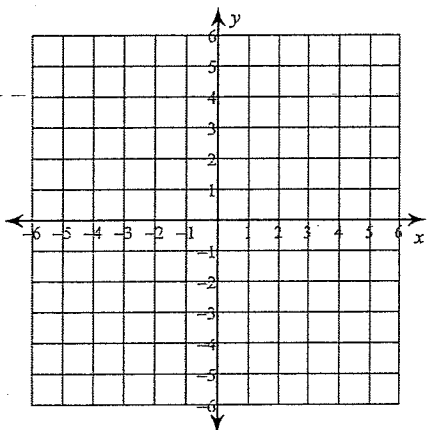
1)  $y = |x - 2| - 4$



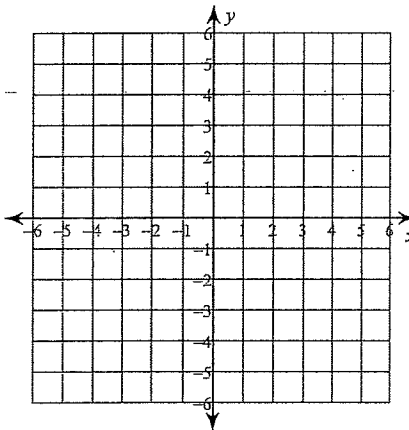
2)  $y = |x + 1|$



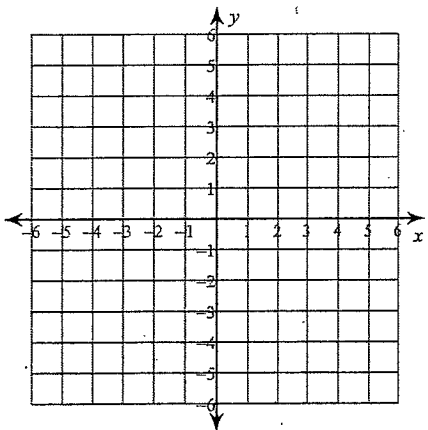
3)  $y = |x| + 1$



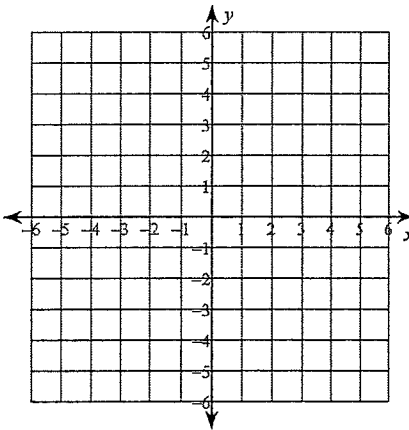
4)  $y = |x| + 2$



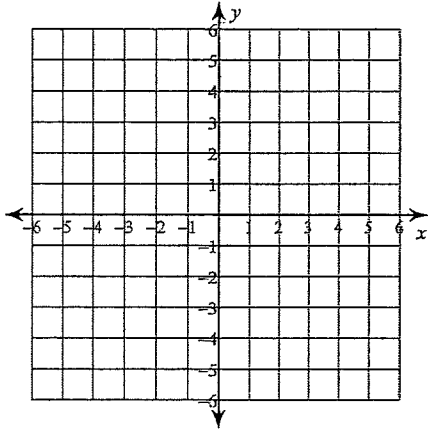
5)  $y = |x + 2|$



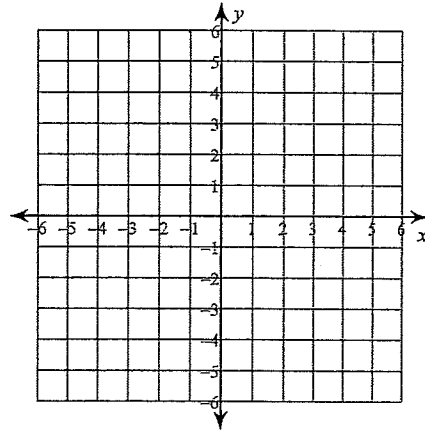
6)  $y = |x + 1| + 3$



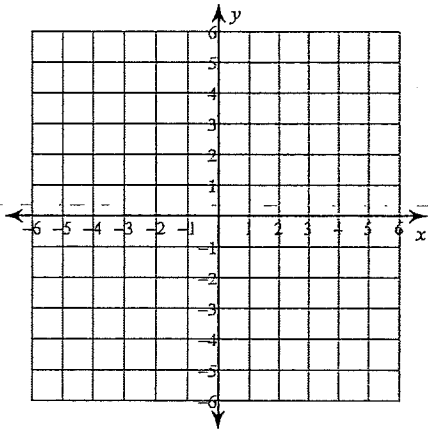
$$7) y = -|x - 2| - 2$$



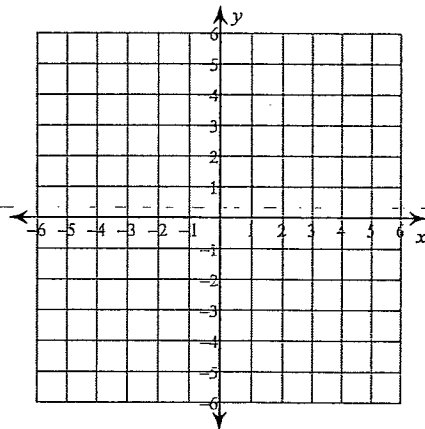
$$8) y = -|x + 1| + 4$$



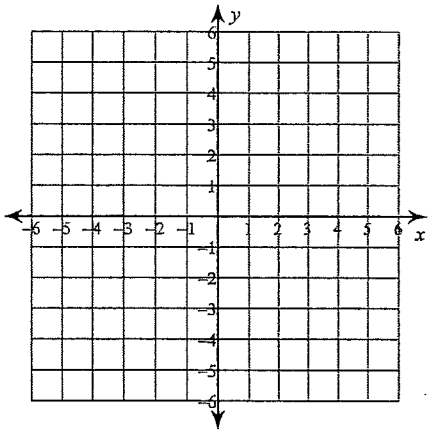
$$9) y = -|x + 4| + 2$$



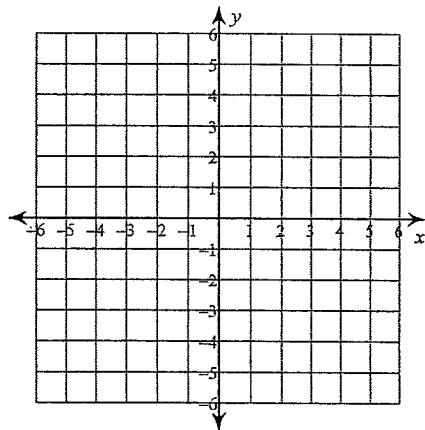
$$10) y = -|x - 1| + 1$$



$$11) y = -|x - 2| + 4$$



$$12) y = -|x - 1| - 1$$



Name: \_\_\_\_\_

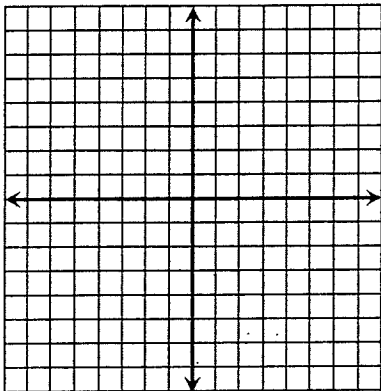
Period: \_\_\_\_\_

### Transformations Worksheet

Without using your graphing calculator, describe the transformations from the parent function  $y = |x|$  to create the following functions, then graph the function.

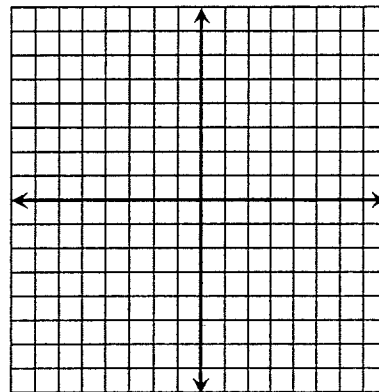
1.  $y = |x - 2|$

Transformation:



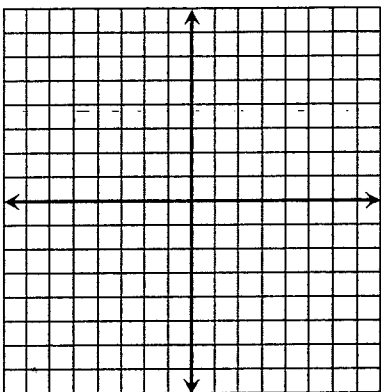
2.  $y = |x| + 3$

Transformation:



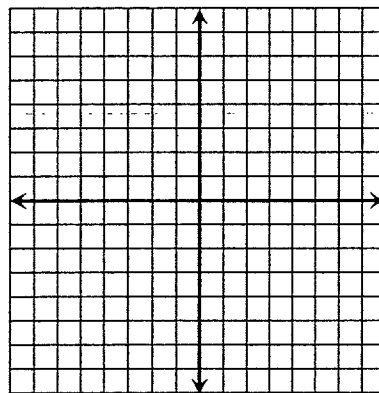
3.  $y = 2|x + 3|$

Transformation:



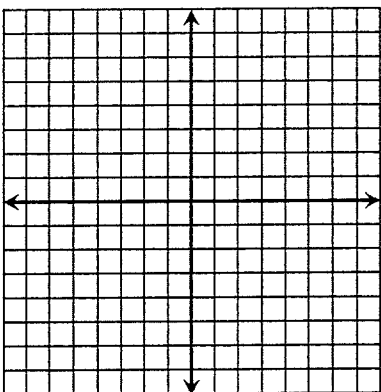
4.  $y = 3|x|$

Transformation:



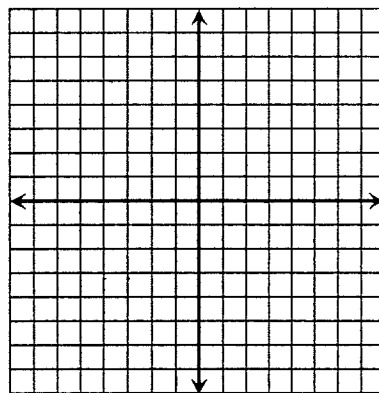
5.  $y = -2|x + 3| - 1$

Transformation:



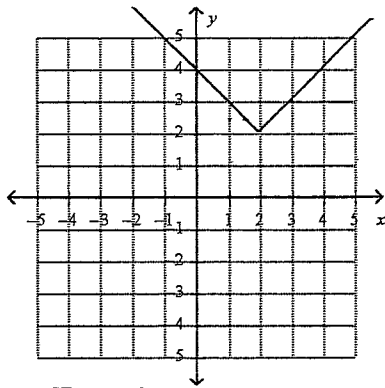
6.  $y = 2|x + 8|$

Transformation:



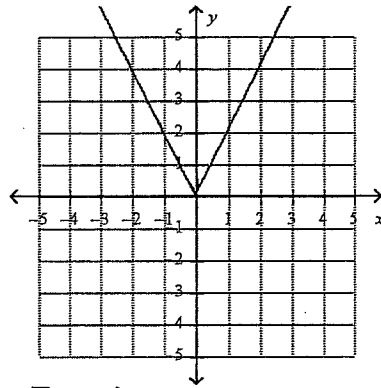
Write an equation for the graphs shown below. Parent function is  $y = |x|$ .

7.



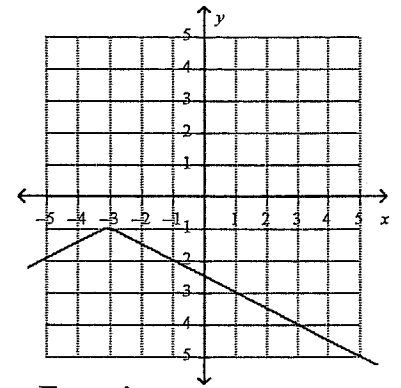
Equation:

8.



Equation:

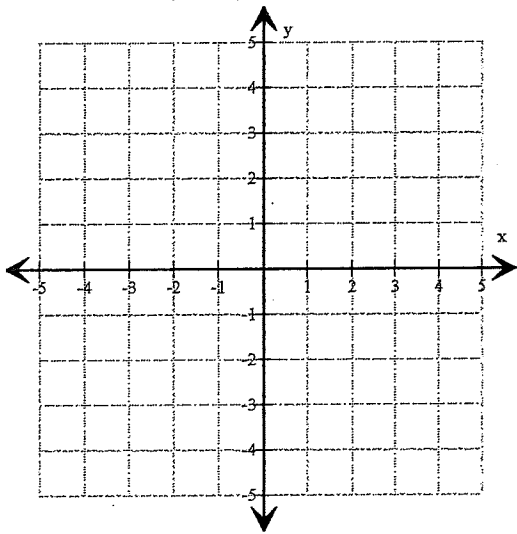
9.



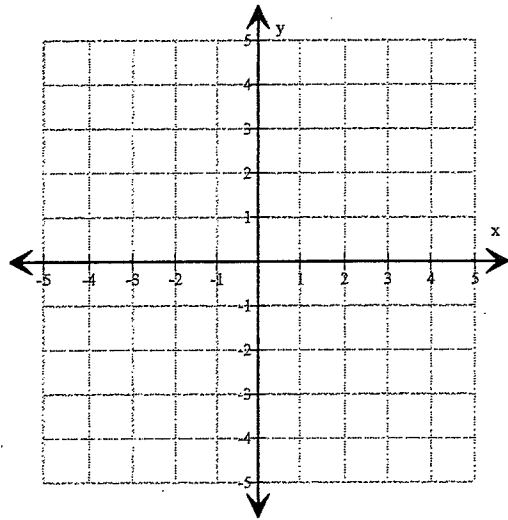
Equation:

MR12 Worksheet (Graph of absolute value equation)

1. Graph  $y = |x - 3|$



2. Graph  $y = |x + 1| - 2$



3. Given the basic equation  $y = |x|$ , under what transformation will result the following equations:

a)  $y = |x - 5|$

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b)  $y = |x + 4| - 2$

c)  $y = 2|x - 1|$

4. Write the equations for the basic absolute value equation  $y = |x|$  under the given transformations:

a) shift 1 unit to the right and up 2 units

b) shift 3 units to the left and 7 units down

c) vertical shrink by a factor of  $1/3$

d) vertical stretch by a factor of 3

Without using your graphing calculator, describe the transformations of the parent function  $y = |x|$  to create the following functions.

1.  $y = |x - 4|$

2.  $y = |x| + 9$

3.  $y = 2|x + 1|$

4.  $y = -3|x|$

5.  $y = -2|x + 7| - 1$

6.  $y = 4|x - 5|$

7. Write an equation for the absolute function described. The parent function  $y = |x|$  reflected across the x-axis, then shifted left 2 units.

Equation:

8. The parent function  $y = |x|$  stretched vertically by a factor of 2, shifted right 5 units and up 3 units.

Equation:

9. Write an equation for the graphs shown below.

