

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

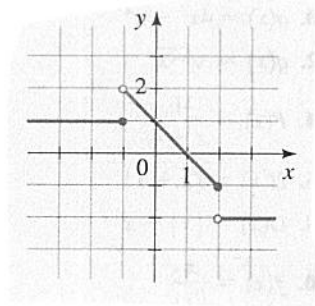
Date: \_\_\_\_\_

PC: Algebraic Definition of Absolute Value

Ms. Loughran

**Do Now:**

1. Write an equation, in standard form, that is perpendicular to the line  $5x - 2y = 2$  and that passes through the point  $(-2, -6)$ .
2. Write equations for the piecewise function whose graph is show:



**Algebraic definition of Absolute Value:**

For any real number  $x$ ,

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

Use the algebraic definition of absolute value to rewrite each expression and then sketch the graph on a separate piece of graph paper.

1.  $|x + 1| =$

2.  $|x - 3| =$

3.  $|5-x| =$

4.  $|3x-2| =$

5.  $|2x-1| =$

6.  $\left|\frac{1}{2}x+4\right| =$

7.  $|3 - 2x| =$

8.  $\frac{x}{|x|} =$

9.  $\frac{|x|}{x} =$

10.  $\frac{|x+2|}{x+2} =$

$$11. \frac{|x-1|}{1-x} =$$

$$12. \frac{|2x|}{2x} =$$

$$13. |x| + x =$$

$$14. |x| - x =$$