Name:_____ Date:_____

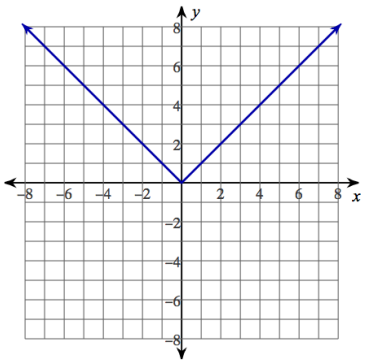
PCH: Algebraic Definition of Absolute Value Ms. Loughran

Do Now:

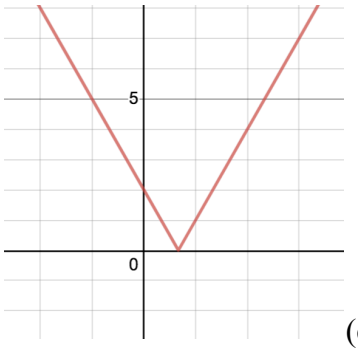
1. Write an equation, in standard form, that is perpendicular to the line $5x-2y=2$ and that passes through the point (-2,-6).

2. Write equations for each piecewise function whose graph is shown:

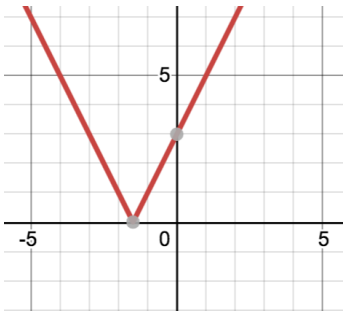
(a)



(b)



(c)



Algebraic definition of Absolute Value:

For any real number x,

$$|x| = \begin{cases} \\ \end{cases}$$

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

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. $|x| - x =$