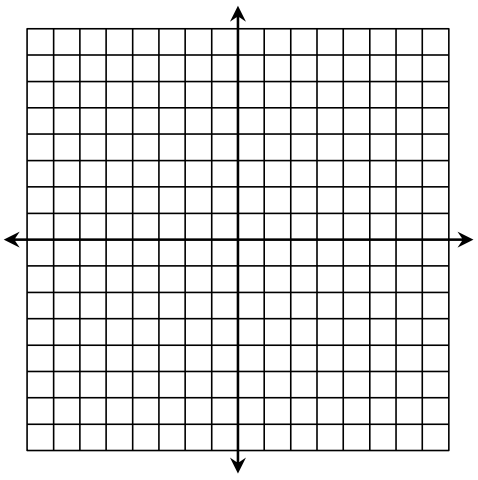
Name:	Date:
Topic:	Class:

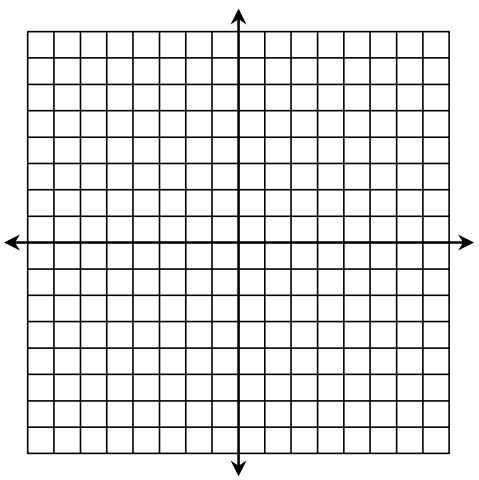
Main Ideas/Questions	Notes/Examples
WARM-UP	**1.** What is the parent function of the absolute value function family? **2.** Describe how the following functions compare to the parent function: **a)** $f(x) = \lvert x - 5 \rvert$ **b)** $f(x) = \lvert x \rvert + 9$ **c)** $f(x) = -\lvert x \rvert$ **d)** $f(x) = 3\lvert x \rvert - 2$ **e)** $f(x) = \frac{1}{4}\lvert x + 6 \rvert$ **f)** $f(x) = -\lvert x + 7 \rvert - 2$
	The **horizontal** and **vertical shifts** describe the **location of the vertex!**
VERTEX FORM *of an Absolute Value Function*	The **vertex form** of an **absolute value function** is written as where _____ is the **vertex**, _____ is the **slope on the right side** and _____ is the **slope on the left side**

Directions: Give the vertex of each absolute value function. Then graph.

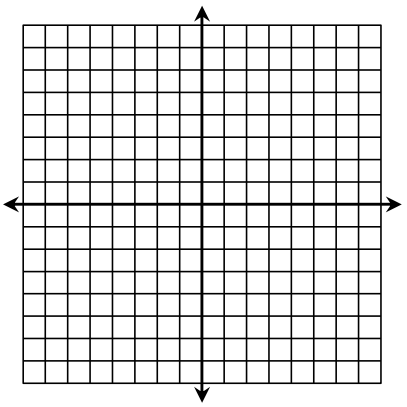
1. $f(x) = \lvert x - 2 \rvert - 4$



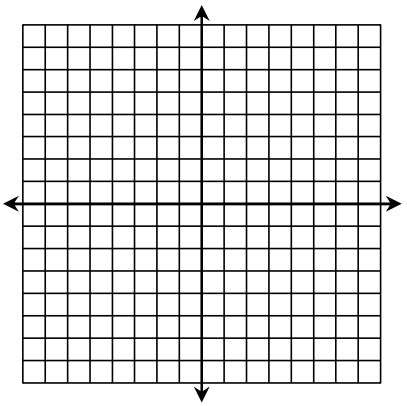
2. $f(x) = 3\lvert x + 5 \rvert$



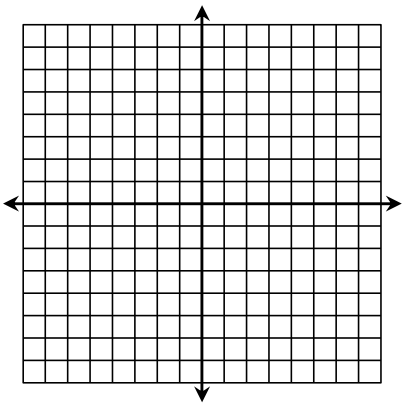
3. $f(x) = 2|x+1|-2$



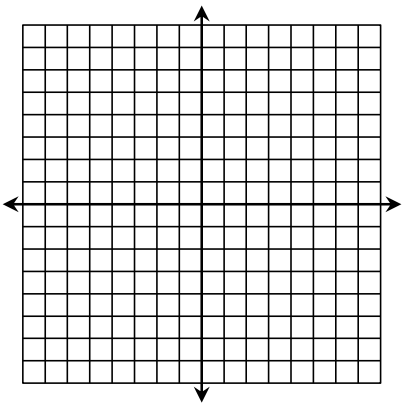
4. $f(x) = -|x-6|$



5. $f(x) = \frac{2}{3}|x+1|-1$

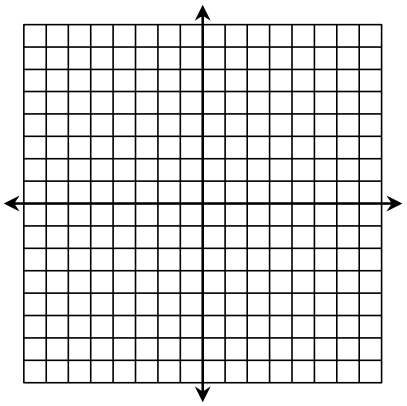


6. $f(x) = -\frac{3}{4}|x|+7$

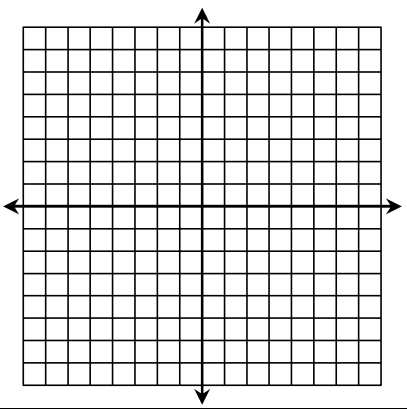


Directions: Graph each piecewise function.

7. $f(x) = \begin{cases} 2x+7 & \text{if } x < -4 \\ 2|x+3| & \text{if } x \geq -4 \end{cases}$

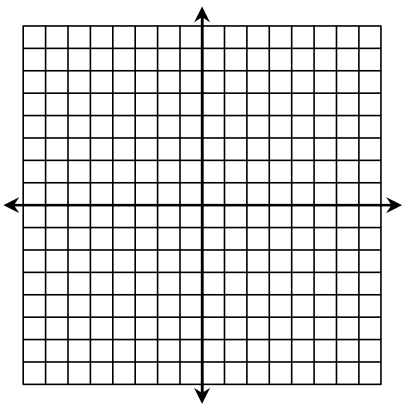


8. $f(x) = \begin{cases} -|x+1|+5 & \text{if } x \leq -4 \\ 3 & \text{if } -4 < x < 2 \\ -x+7 & \text{if } x \geq 2 \end{cases}$



Directions: Graph each absolute value inequality by identifying the vertex.

9. $y \leq |x+4|-6$



10. $y > -2|x-5|+4$