

Name:	Date:
Topic:	Class:

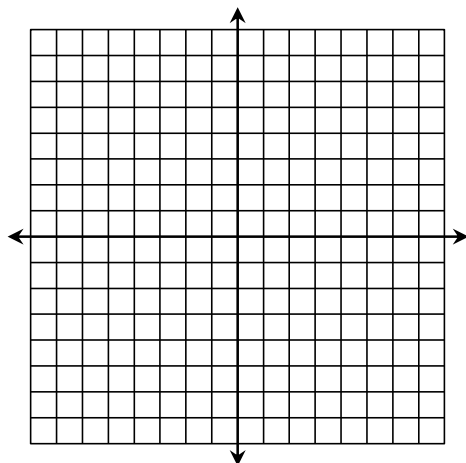
Main Ideas/Questions	Notes/Examples
VERTEX FORM <i>of a Quadratic Function</i>	Vertex Form of a Quadratic Equation: _____ _____ is the vertex; _____ is the axis of symmetry _____ determines the width and direction of the parabola
WHY USE <i>Vertex Form?</i>	Vertex form shows the _____ on a quadratic equation in respect to its parent function, _____.
TRANSFORMATIONS <i>from the Parent Function</i>	Describe how each function compares to the parent function. 1) $f(x) = x^2 + 9$ 2) $f(x) = x^2 - 2$ 3) $f(x) = -(x + 5)^2$ 4) $f(x) = (x - 4)^2 - 1$ 5) $f(x) = \frac{1}{3}x^2 + 2$ 6) $f(x) = -2(x + 4)^2$ 7) Mason graphed the parent function of a quadratic equation. Then, he reflected the parabola over the x-axis, and translated it seven units up and three units to the right. What is the equation of the new parabola?

Directions: Give the vertex and axis of symmetry of each quadratic function. Then graph.

8. $f(x) = (x - 2)^2 + 3$ <table border="1"> <thead> <tr> <th>x</th> <th>$f(x)$</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	x	$f(x)$															9. $f(x) = x^2 - 4$ <table border="1"> <thead> <tr> <th>x</th> <th>$f(x)$</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	x	$f(x)$														
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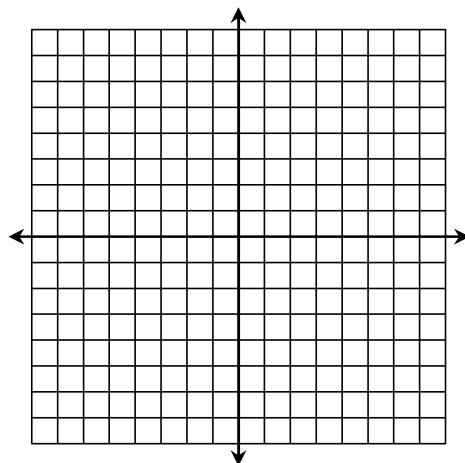
10. $f(x) = -(x+5)^2 - 1$

x	$f(x)$



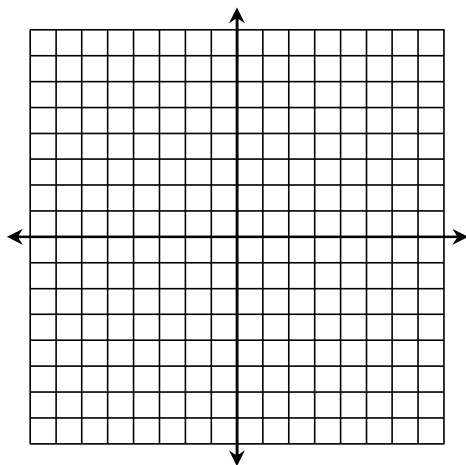
11. $f(x) = 3(x-4)^2$

x	$f(x)$

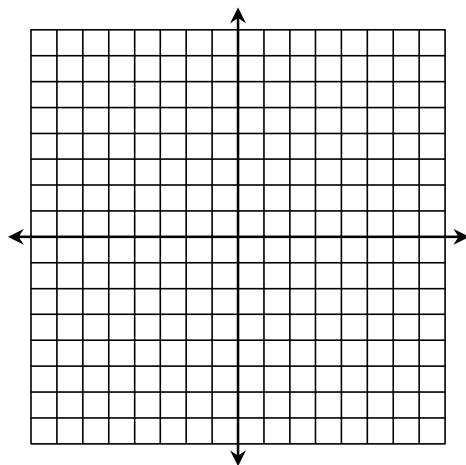


Directions: Graph each piecewise function.

12. $f(x) = \begin{cases} -\frac{1}{2}x - 6 & \text{if } x < -2 \\ (x-1)^2 - 5 & \text{if } x > -2 \end{cases}$



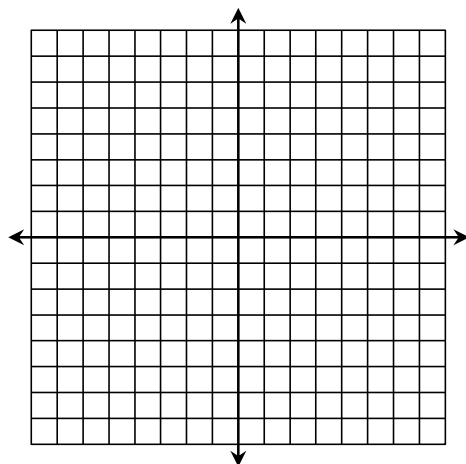
13. $f(x) = \begin{cases} -2x^2 + 6 & \text{if } x \leq 1 \\ -3x + 4 & \text{if } x > 1 \end{cases}$



Directions: Give the vertex and axis of symmetry of each quadratic inequality. Then graph.

14. $y < -(x-3)^2$

x	$f(x)$



15. $y \geq 4(x+1)^2 - 7$

x	$f(x)$

