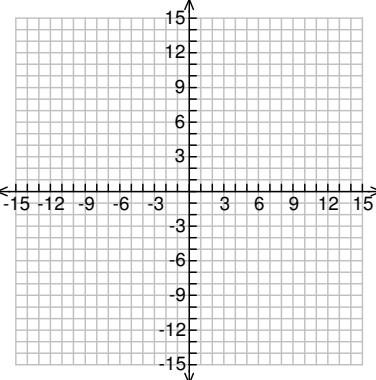
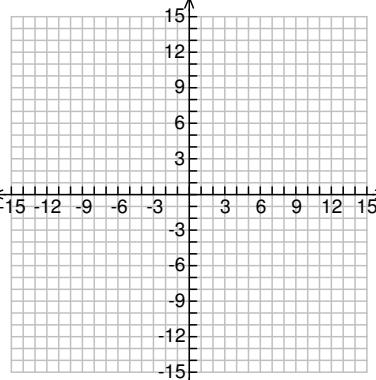
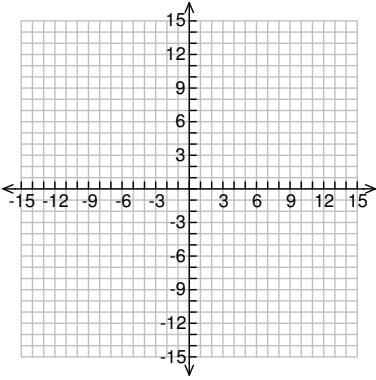
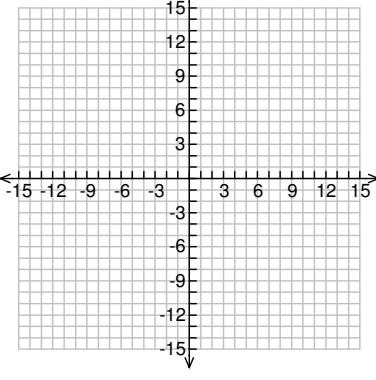
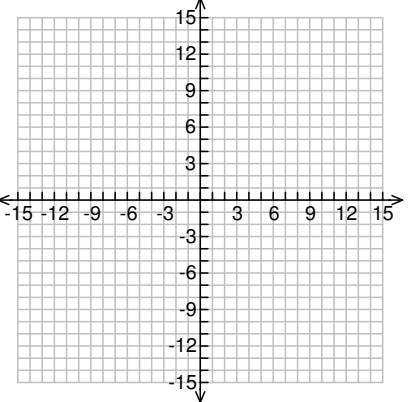
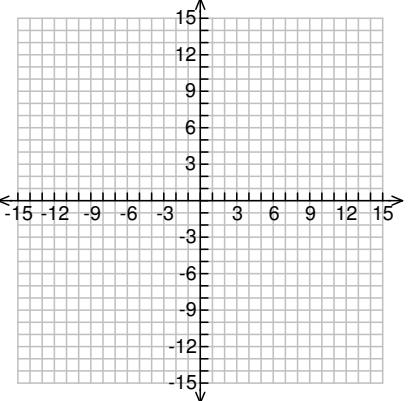
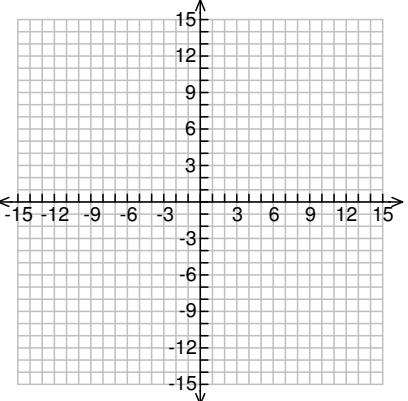


**MCF 3M1**  
**Transformations**

Complete the chart.

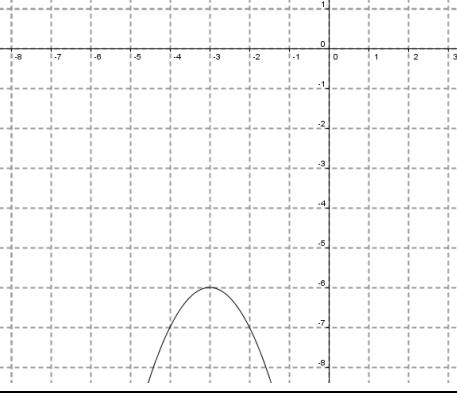
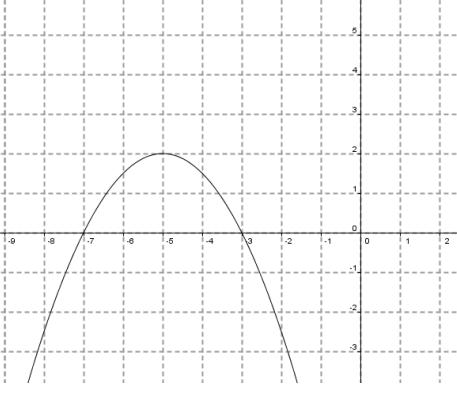
Quadratic Function	State the Transformations	Sketch the Transformations
$y = x^2 + 5$	- vertical translation 5 units up	
$y = 2(x - 3)^2$		
$y = \frac{1}{2}(x + 6)^2 - 3$		
$y = -4(x + 5)^2 + 4$		

Quadratic Function	State the Transformations	Sketch the Transformations
$y = -(x + 3)^2 - 6$		
$y = -\frac{1}{2}(x + 5)^2 + 2$		
$y = -3(x - 5)^2 + 2$		

## Transformations

Complete the chart.

Quadratic Function	State the Transformations	Sketch the Transformations
$y = x^2 + 5$	- vertical translation 5 units up	<p>A Cartesian coordinate system showing a parabola opening upwards. The vertex is at (0, 5). The x-axis ranges from -5 to 5, and the y-axis ranges from -1 to 8. Grid lines are present every 1 unit.</p>
$y = 2(x - 3)^2$	vertical stretch right 3	<p>A Cartesian coordinate system showing a parabola opening upwards. The vertex is at (3, 0). The x-axis ranges from -5 to 5, and the y-axis ranges from -1 to 5. Grid lines are present every 1 unit.</p>
$y = \frac{1}{2}(x + 6)^2 - 3$	vertical compress left 6 down 3	<p>A Cartesian coordinate system showing a parabola opening upwards. The vertex is at (-6, -3). The x-axis ranges from -10 to 0, and the y-axis ranges from -10 to 5. Grid lines are present every 1 unit.</p>
$y = -4(x + 5)^2 + 4$	reflect vertical stretch left 5 up 4	<p>A Cartesian coordinate system showing a parabola opening downwards. The vertex is at (-5, 4). The x-axis ranges from -10 to 0, and the y-axis ranges from -3 to 5. Grid lines are present every 1 unit.</p>

Quadratic Function	State the Transformations	Sketch the Transformations
$y = -(x + 3)^2 - 6$	<p>reflect left 3 down 6</p>	
$y = -\frac{1}{2}(x + 5)^2 + 2$	<p>reflect vertical compress left 5 up 2</p>	
$y = -3(x - 5)^2 + 2$	<p>reflect vertical stretch right 5 up 2</p>	