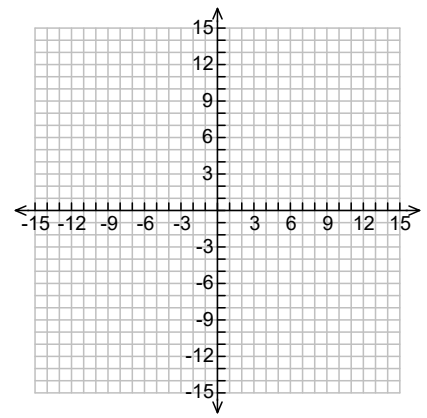


**MCF 3M1**  
**Transformations**

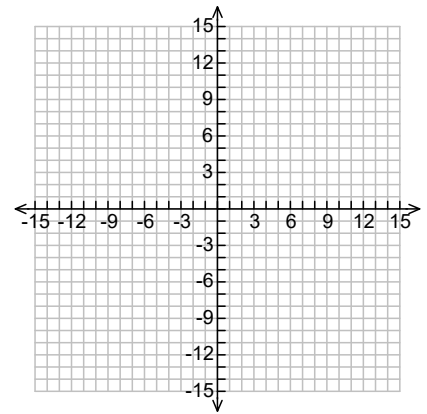
Complete the chart.

| Quadratic Function             | State the Transformations | Sketch the Transformations |
|--------------------------------|---------------------------|----------------------------|
| $y = x^2 + 5$                  |                           |                            |
| $y = 2x^2 - 12x + 18$          |                           |                            |
| $y = \frac{1}{2}x^2 + 6x + 15$ |                           |                            |

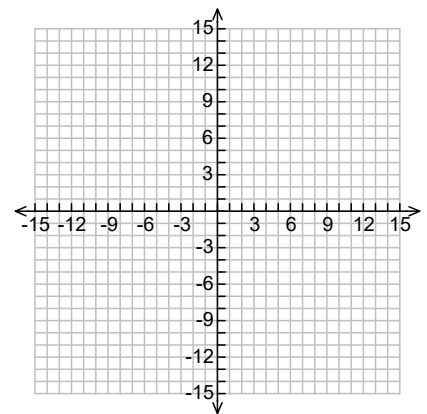
$$y = -4x^2 - 40x - 96$$



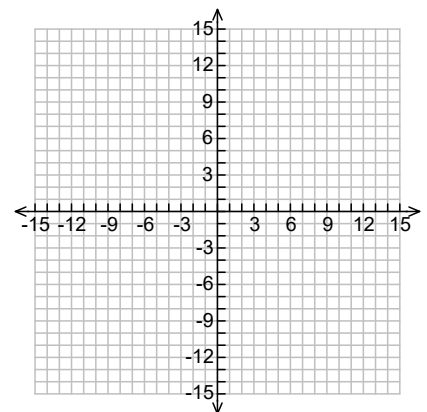
$$y = -x^2 - 6x - 15$$



$$y = -\frac{1}{2}x^2 - 5x - \frac{21}{2}$$



$$y = -3x^2 + 30x - 73$$



MCF 3M1  
Transformations

ANSWERS

Complete the chart.

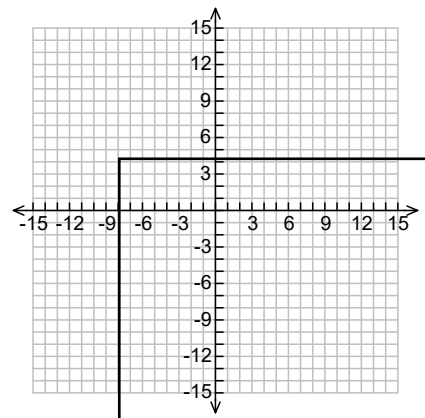
| Quadratic Function  | State the Transformations                           | Sketch the Transformations |
|---|---|----------------------------|
| $y = x^2 + 5$<br><br>vertex (0,5)<br>step 1, 3, 5   | up 5  |                            |
| $y = 2x^2 - 12x + 18$<br>$y = 2(x - 3)^2$<br><br>vertex (3, 0)<br>step 2, 6, 10                               | vertical stretch by 2<br>shift right 3              |                            |
| $y = \frac{1}{2}x^2 + 6x + 15$<br>$y = \frac{1}{2}(x + 6)^2 - 3$<br><br>vertex (-6, -3)<br>step 0.5, 1.5, 2.5 | vertical compress $\frac{1}{2}$<br>left 6<br>down 3 |                            |

$$y = -4x^2 - 40x - 96$$

$$y = -4(x+5)^2 + 4$$

vertex  $(-5, 4)$   
step  $-4, -12, -20$

reflect in x-axis  
vertical stretch  
left 5  
up 4

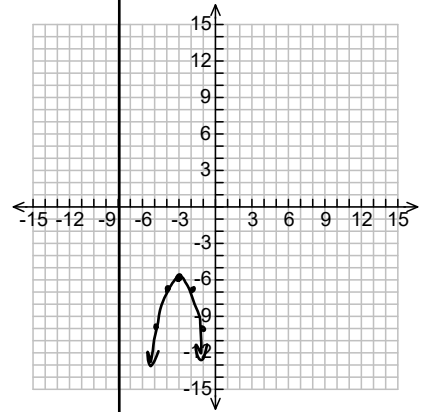


$$y = -x^2 - 6x - 15$$

$$y = -(x+3)^2 - 6$$

vertex  $(-3, -6)$   
step  $-1, -3, -5$

reflected in x-axis  
left 3  
down 6

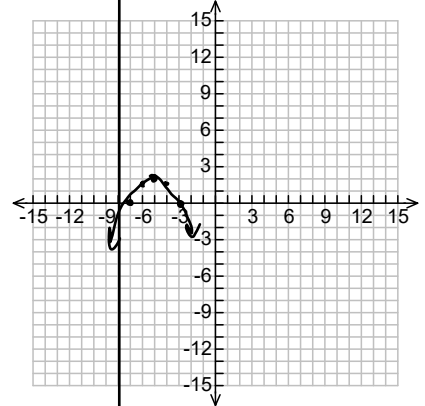


$$y = -\frac{1}{2}x^2 - 5x - \frac{21}{2}$$

$$y = -\frac{1}{2}(x+5)^2 + 2$$

vertex  $(-5, 2)$   
step  $-0.5, -1.5, -2.5$

reflect in x-axis  
vertical compress  
left 5  
up



$$y = -3x^2 + 30x - 73$$

$$y = -3(x-5)^2 + 2$$

vertex  $(5, 2)$   
step  $-3, -9, -15$

reflect in x-axis  
vertical stretch  
right 5  
up 2

