

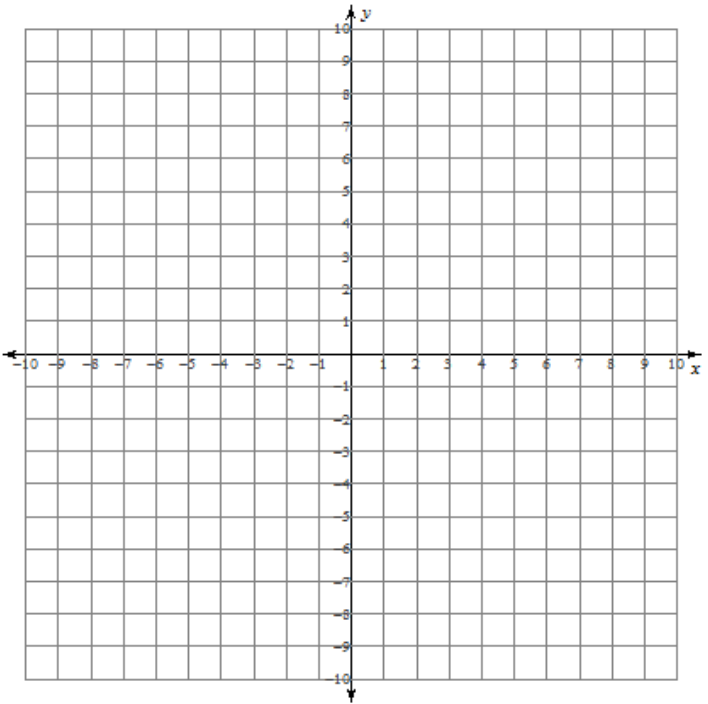
Function Toolkit #1

Use the Function Toolkit to sketch a graph of each of the following functions on the coordinate axes provided. Show all work, calculations, and tables where appropriate. State the domain, range, vertex, x- and y-intercepts when requested.

1. $y = -\frac{1}{2}(x + 4)^2 + 3$

Mapping Rule: $(x, y) \rightarrow$				
Base Function			New Function	

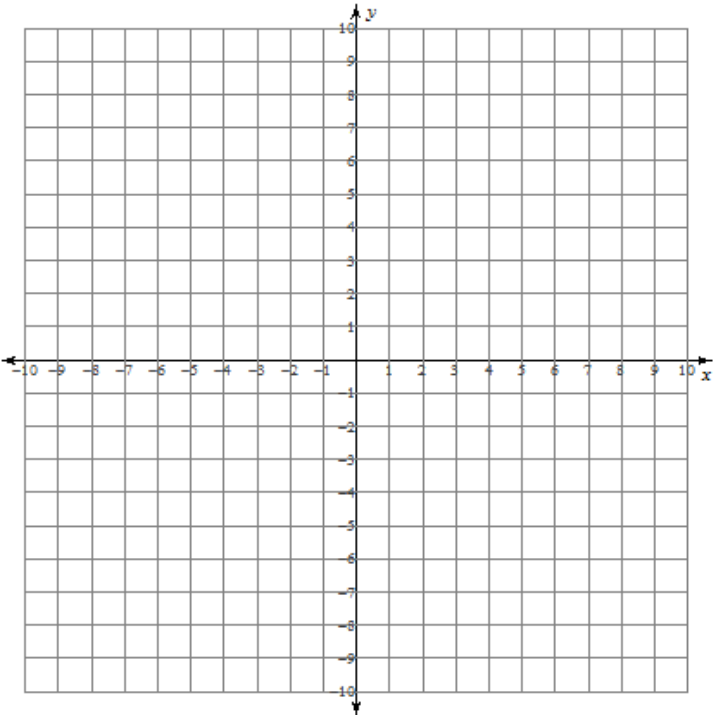
Vertex	x-int	y-int	Domain	Range



2. $y = 3|x - 2| - 4$

Mapping Rule: $(x, y) \rightarrow$				
Base Function			New Function	

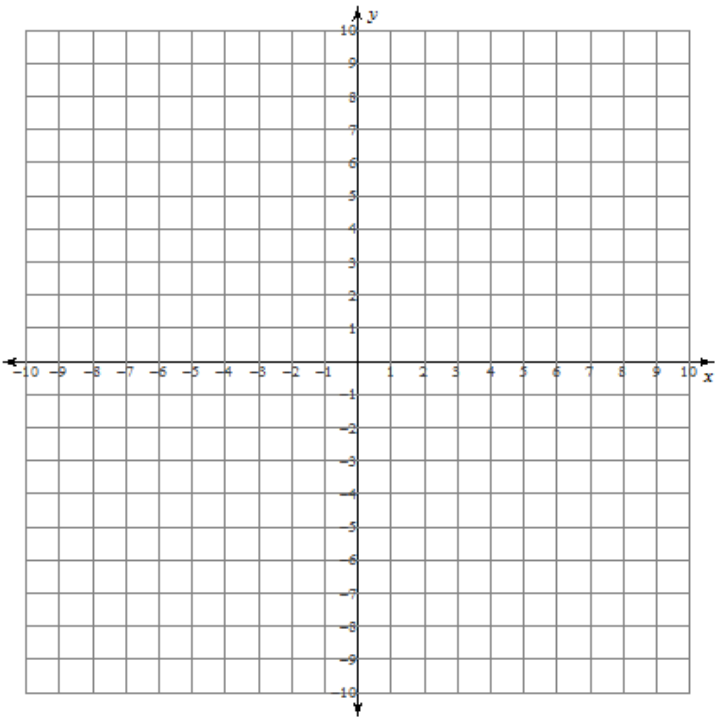
x-int	y-int	Domain	Range



3. $y = e^{x+2} - 6$

Mapping Rule: $(x,y) \rightarrow$				
Base Function			New Function	

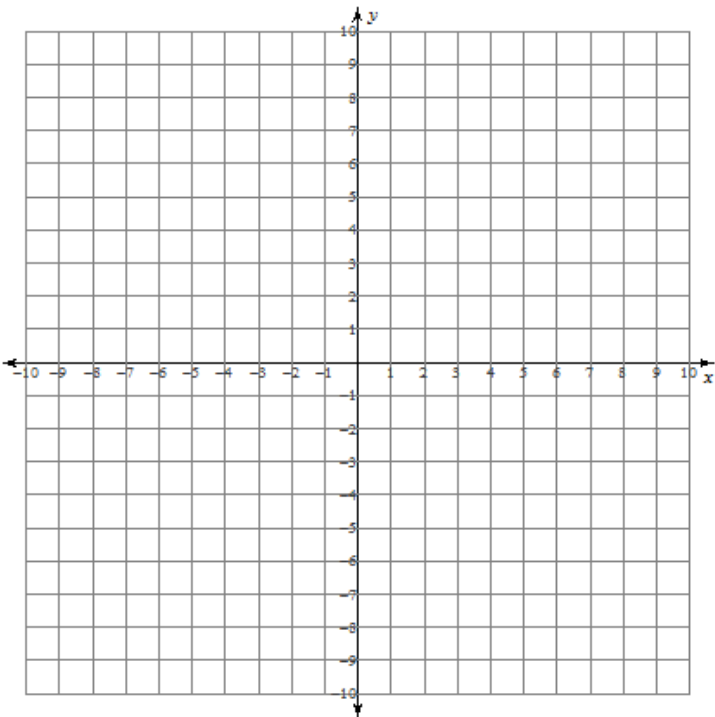
x-int	y-int	Domain	Range



4. $y = -3\sqrt{x+6} + 5$

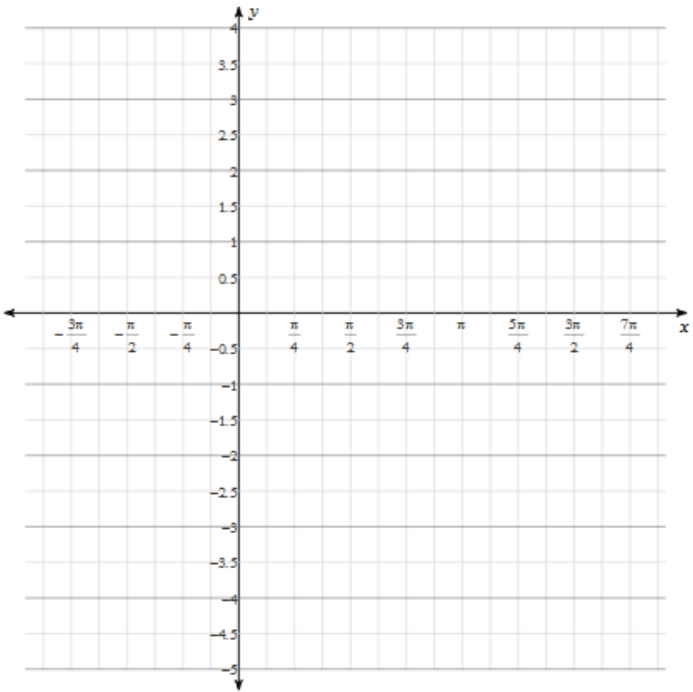
Mapping Rule: $(x,y) \rightarrow$				
Base Function			New Function	

x-int	y-int	Domain	Range



5. $y = 2\sin\left(\frac{4}{3}\left(x - \frac{\pi}{4}\right)\right) - 1$

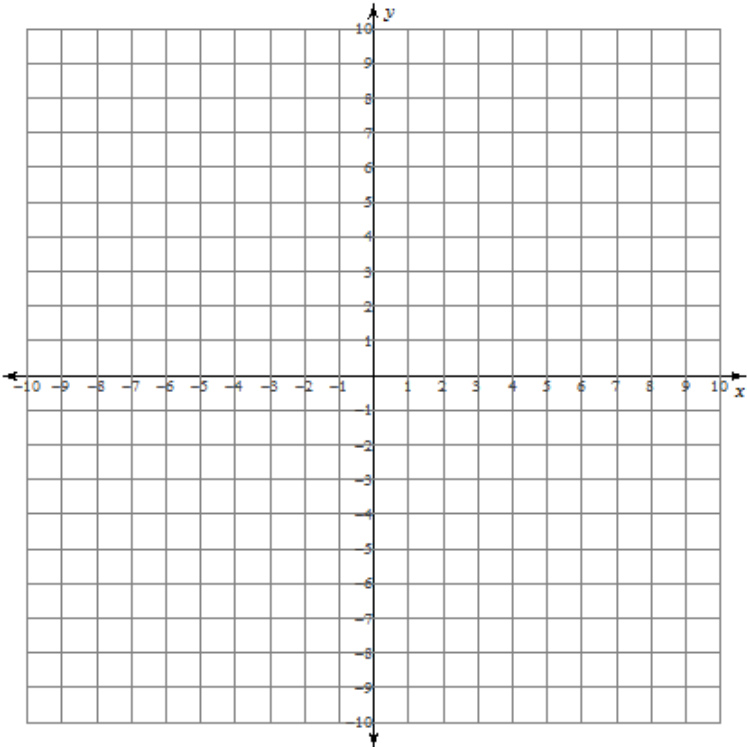
Mapping Rule: $(x, y) \rightarrow$				
Base Function			New Function	



x-int	y-int	Domain	Range

6. $y = -x^3 - x^2 + 5x - 3$

Factor to find all the x-intercepts.

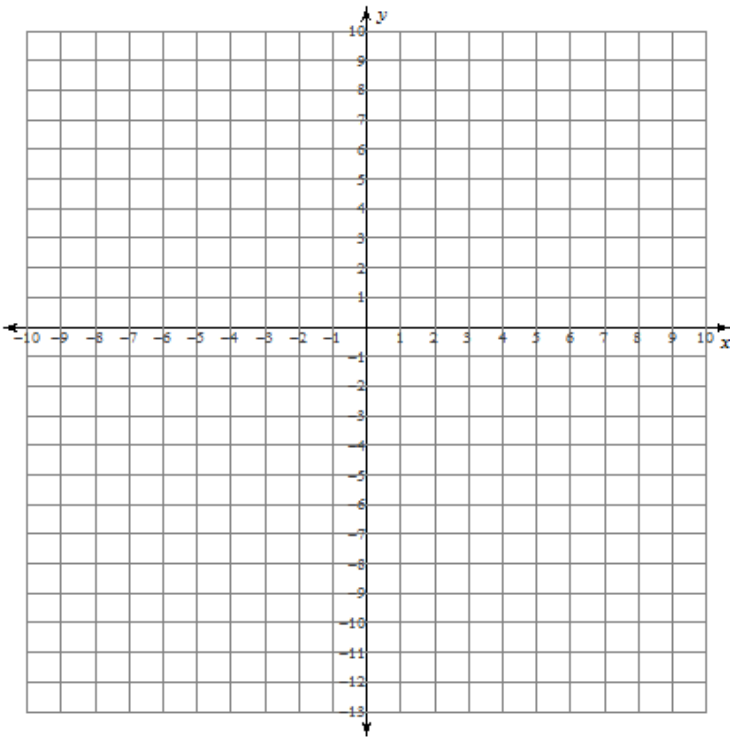


x-int	y-int	Domain	Range
Other points:			

7. $y = (x + 3)(x - 2)(x^2 - 1)$

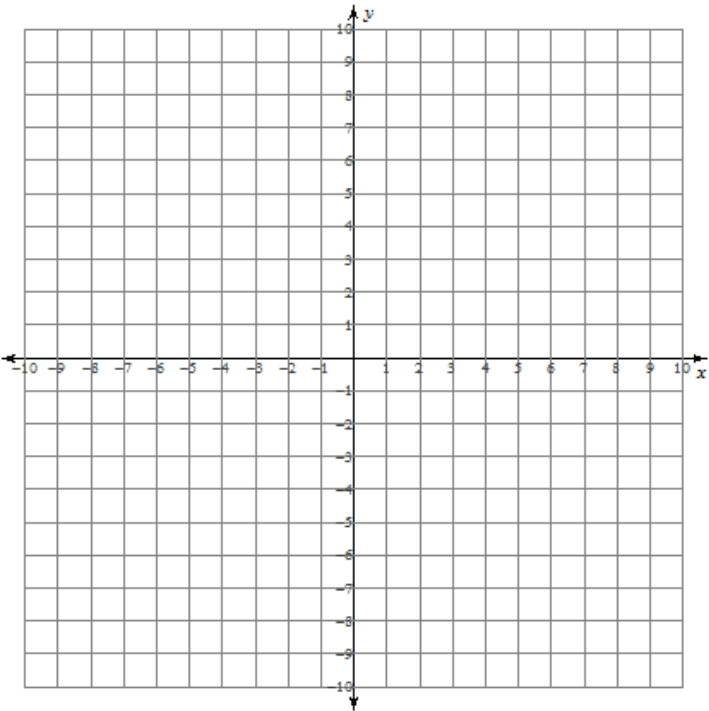
x-int	y-int	Domain	Range

Other points:			



8. $y = \left(\frac{1}{2}\right)^{(x+4)} - 3$

Mapping Rule: $(x, y) \rightarrow$			
Base Function		New Function	

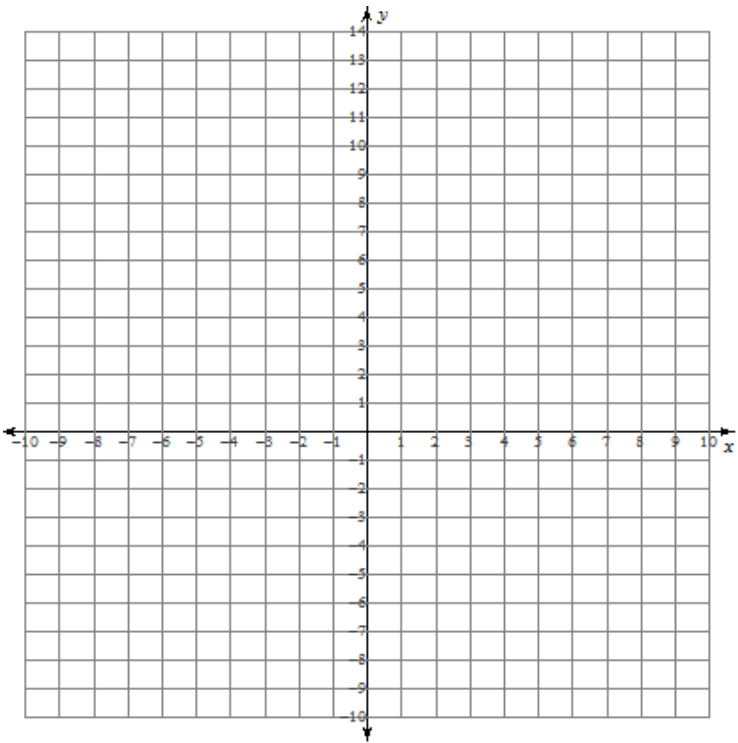


x-int	y-int	Domain	Range

9. $y = (x - 3)^3 + 5$

Mapping Rule: $(x, y) \rightarrow$				
Base Function			New Function	

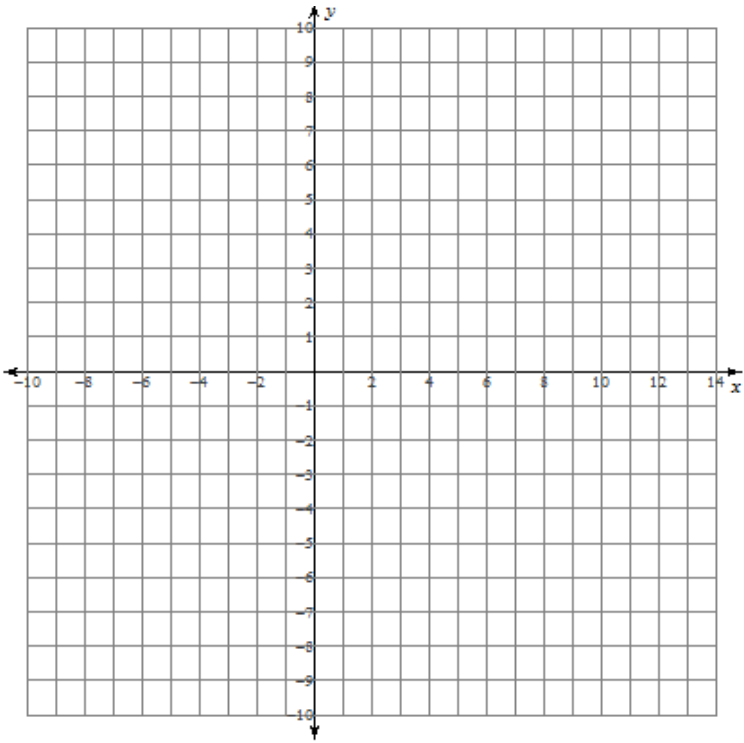
x-int	y-int	Domain	Range



10. $y = \log_2(x - 3) - 4$

Mapping Rule: $(x, y) \rightarrow$				
Base Function			New Function	

x-int	y-int	Domain	Range

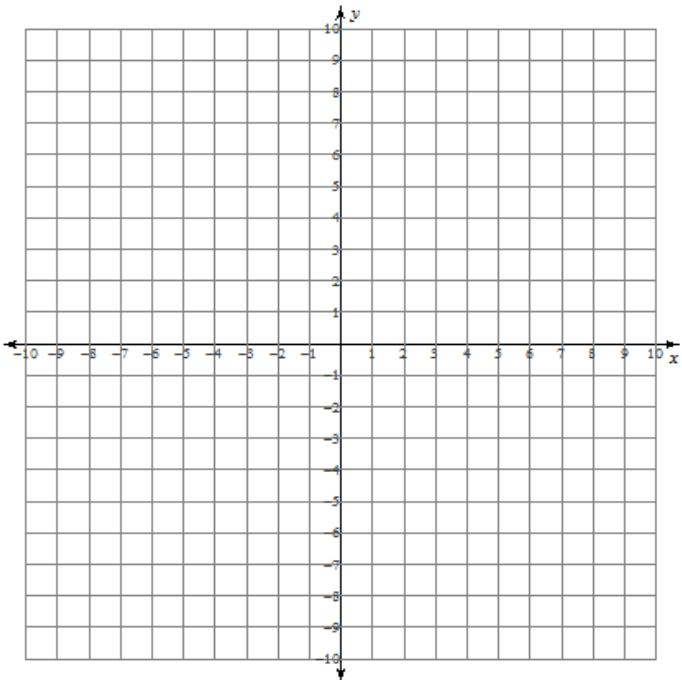


11. $y = \frac{2x^2 + 2x - 4}{x^2 - x - 12}$

Factored form:

x-int	y-int	Domain	Range

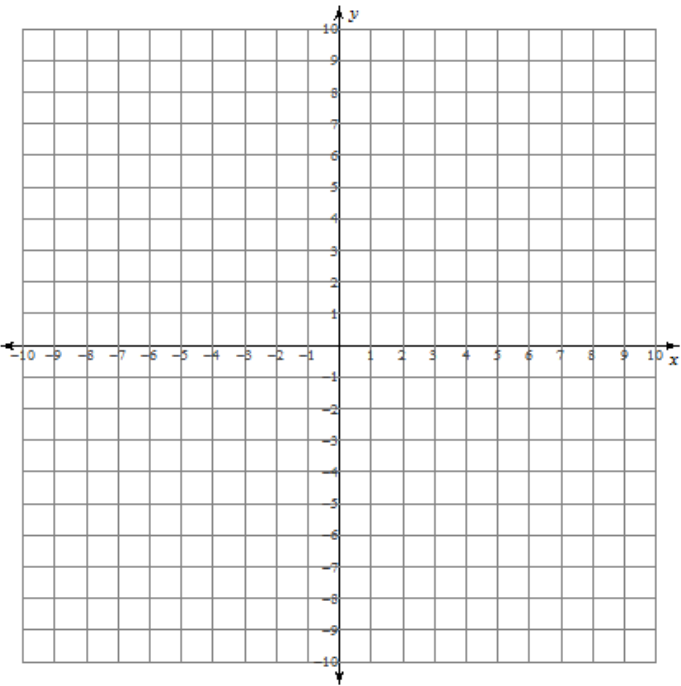
Other points:			



12. $y = \ln(x + 5) + 3$

Mapping Rule: $(x, y) \rightarrow$			
Base Function		New Function	

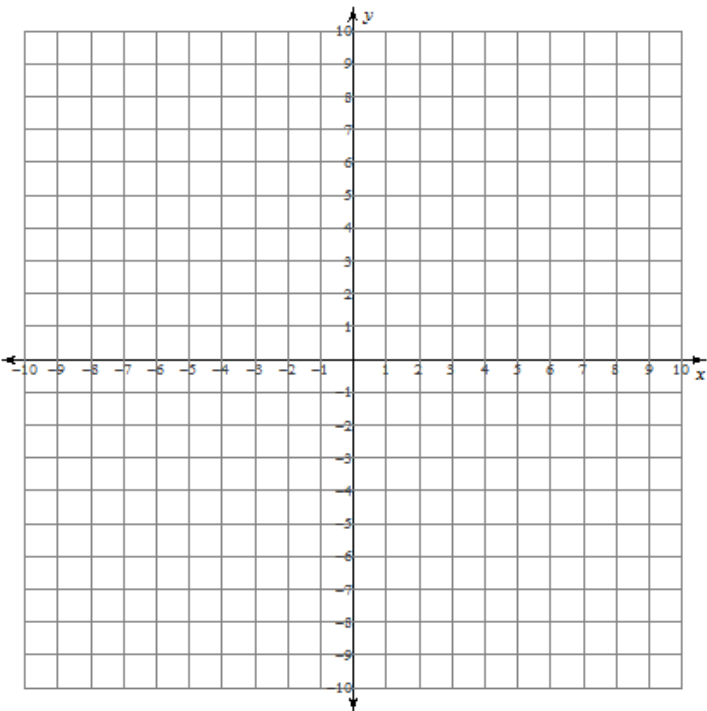
x-int	y-int	Domain	Range



13. $y = \frac{1}{(x+3)^2} - 2$

Mapping Rule: $(x,y) \rightarrow$			
Base Function		New Function	

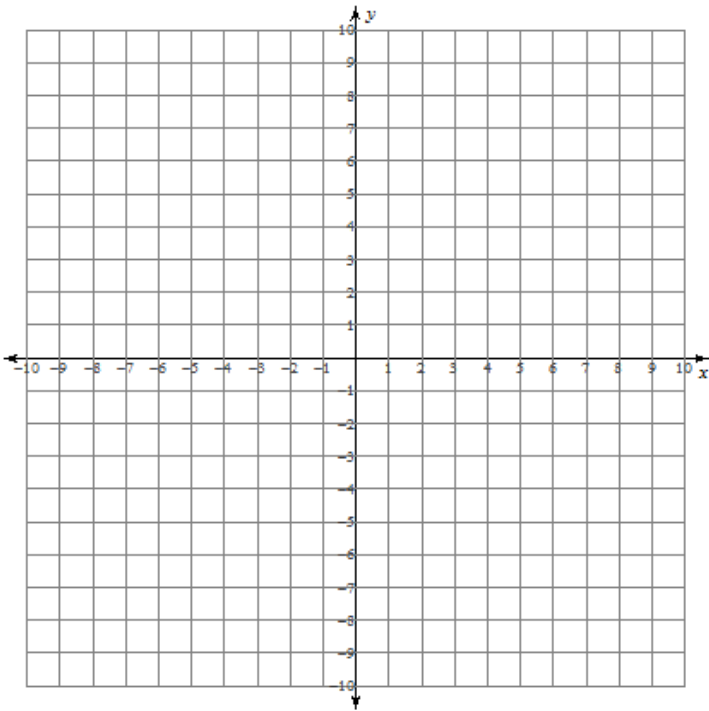
x-int	y-int	Domain	Range



14. $y = \frac{4}{x+2} + 3$

Mapping Rule: $(x,y) \rightarrow$			
Base Function		New Function	

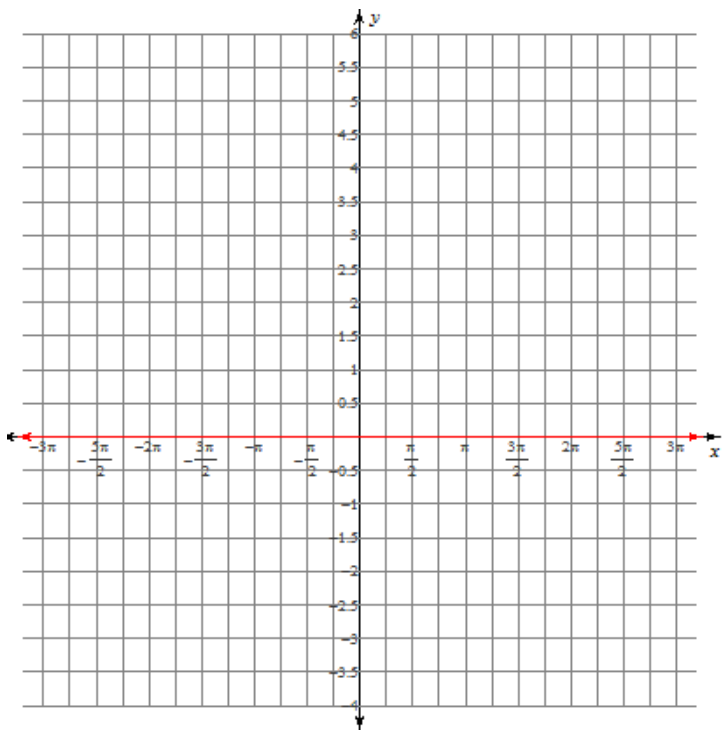
x-int	y-int	Domain	Range



15. $y = -2\cos\left(\frac{1}{2}x\right) + 1$

Mapping Rule: $(x, y) \rightarrow$			
Base Function		New Function	

x-int	y-int	Domain	Range



16.

$y = 3^{0.5x-1} + 1$

Mapping Rule: $(x, y) \rightarrow$			
Base Function		New Function	

x-int	y-int	Domain	Range

