

Do-Now

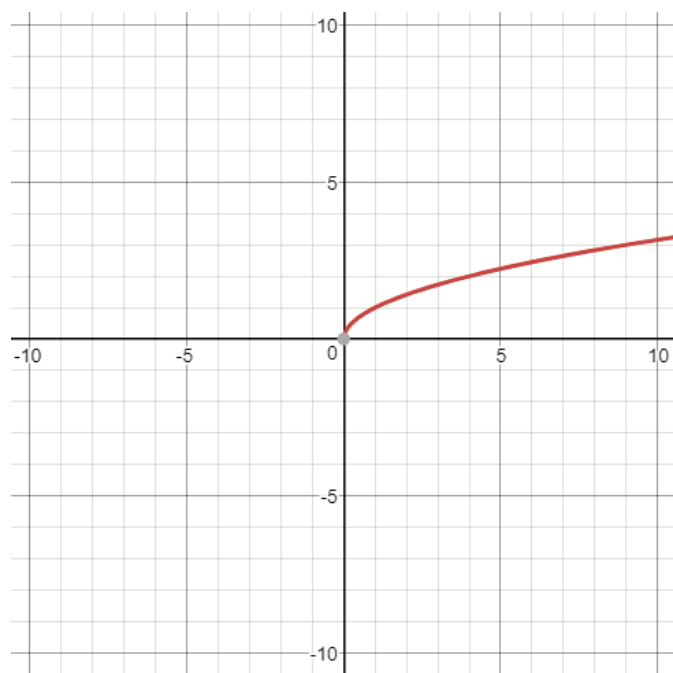
1) Describe the transformations from $y = x^2$:

$$y = -5(x + 9)^2 - 12$$

The square root function:

$$f(x) = \sqrt{x}$$

x	f(x)
0	
1	
2	
4	
9	



What are the transformations from $y = \sqrt{x}$

1) $f(x) = \sqrt{x+4}$

2) $f(x) = \sqrt{x} - 10$

3) $f(x) = 3\sqrt{x}$

4) $f(x) = -\sqrt{x-6}$

Transformations of functions in general

$$y = af(x - h) + k$$

Dilation/
Reflection

Horizontal
Translation

Vertical
Translation

Describe the Transformation from $y = f(x)$

$$y = f(x + 6)$$

$$y = f(x) - 4$$

$$y = 3f(x)$$

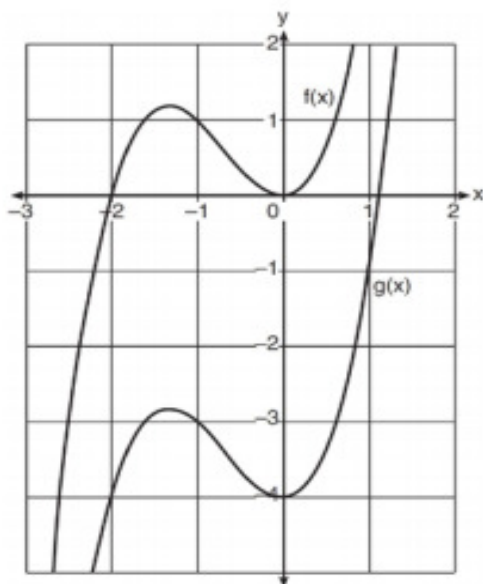
$$y = -f(x) + 7$$

$$y = f(x - 2) - 5$$

$$y = -4f(x + 3) + 6$$

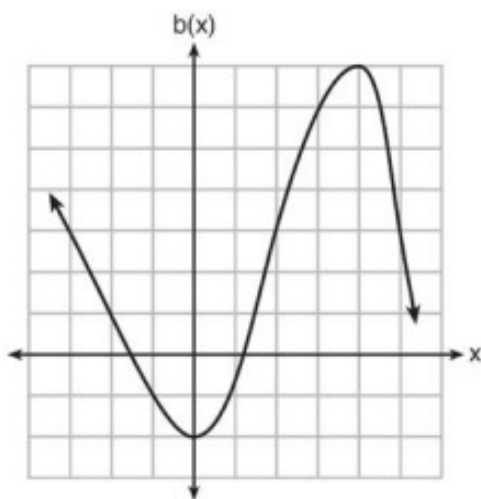
REGENTS ALERT!

- 1) In the diagram below, $f(x) = x^3 + 2x^2$ is graphed. Also graphed is $g(x)$, the result of a translation of $f(x)$.



Determine an equation of $g(x)$. Explain your reasoning.

- 2) Richard is asked to transform the graph of $b(x)$ below.



The graph of $b(x)$ is transformed using the equation $h(x) = b(x - 2) - 3$. Describe how the graph of $b(x)$ changed to form the graph of $h(x)$.

Your Turn!

$$y = f(x-3) + 2$$

$$y = 2f(x-2)$$

$$y = -f(x)$$

$$y = 3f(x) + 4$$

$$y = -f(x+2) - 3$$

$$y = \frac{1}{2}f(x+6) + 1$$

