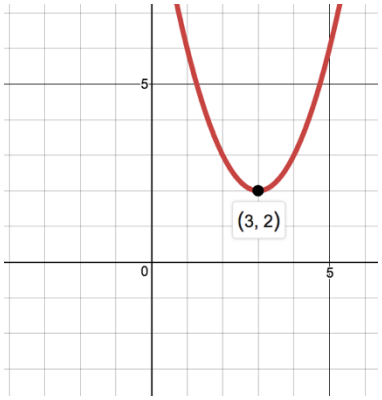
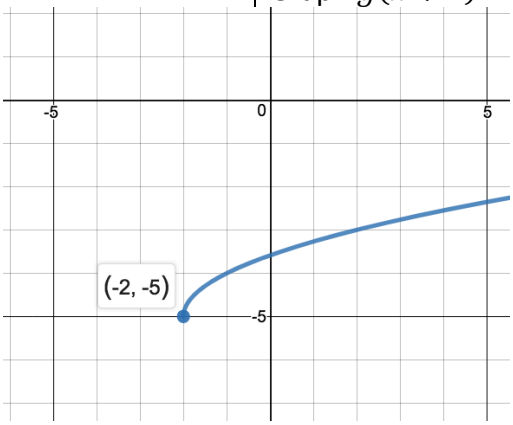
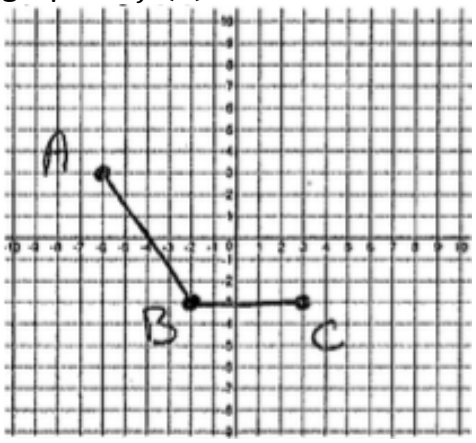
PC 1-7 (Transformations Investigation Exploration)

Graph the function: $f(x) = (x-3)^2 + 2$	**ANOTHER WAY OF SAYING THIS:** Let $f(x) = x^2$ Graph $f(x-3) + 2$	Graph the function: $g(x) = \sqrt{x+2} - 5$	**ANOTHER WAY OF SAYING THIS:** Let $g(x) = \sqrt{x}$ Graph $g(x+2) - 5$
			

Original Function	**Describe the transformation**
$h(x+2) + 6$	*"The graph moves left two units and up 6 units"*
$f(x+5) - 3$	
$g(x-7) + 2$	
$m(x+4) - 7$	

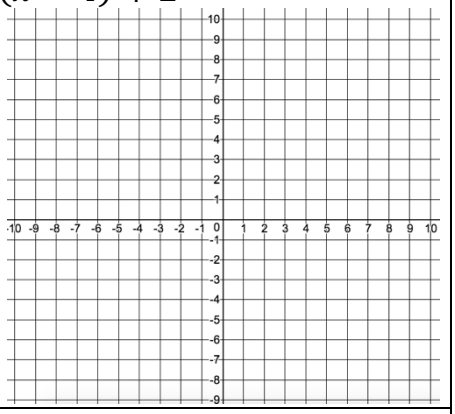
Parent Equation	Transformation	New expression	Describe the transformation
$f(x) = x^2$	$f(x-3) + 2$	$(x-3)^2 + 2$	*"Shift right 3 and up 2"*
$g(x) = x^2$	$g(x+5) - 9$		
$h(x) = \sqrt{x}$	$h(x+2) + 5$		
$m(x) = \frac{1}{x}$	$m(x-4) + 3$		
$r(x) = x^3$	$r(x+200) - 35$		
		$(x-5)^2 - 12$	
		$\frac{1}{x+2} + 7$	
		$\sqrt{x+15} - 8$	
			"Shift left 2 and up 30"

The graph of $f(x)$ is shown below:

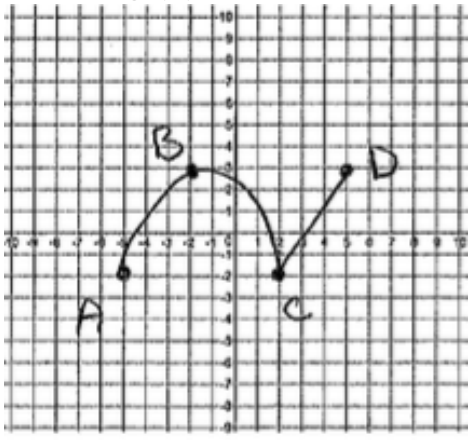


Using the graph of $f(x)$, graph:

$$2f(x-4)+2$$

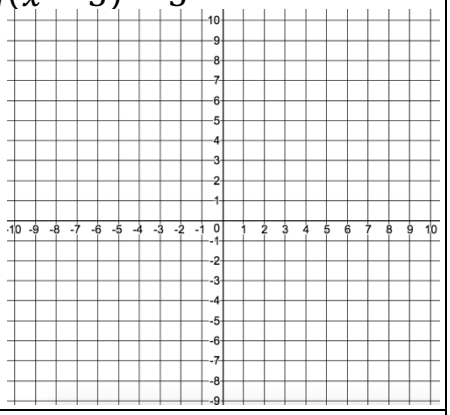


The graph of $g(x)$ is shown below:

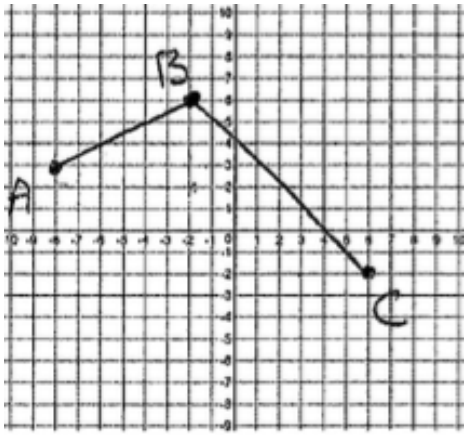


Using the graph of $g(x)$, graph

$$-2g(x-3)-3$$

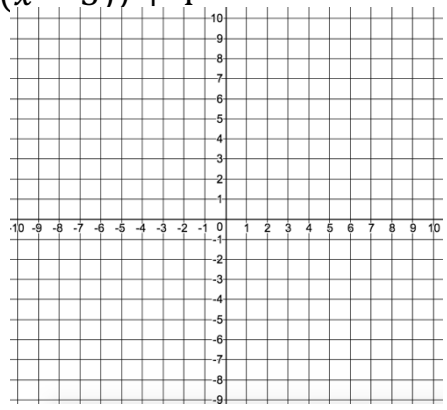


The graph of $h(x)$ is shown below:

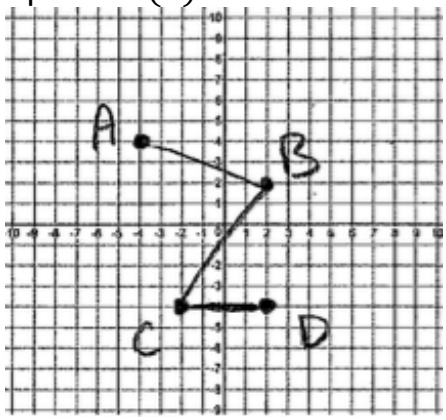


Using the graph of $h(x)$, graph

$$g(2(x-3))+4$$



The graph of $m(x)$ is shown below:



Using the graph of $h(x)$, graph

$$m\left(-\frac{1}{2}(x+1)\right)-5$$