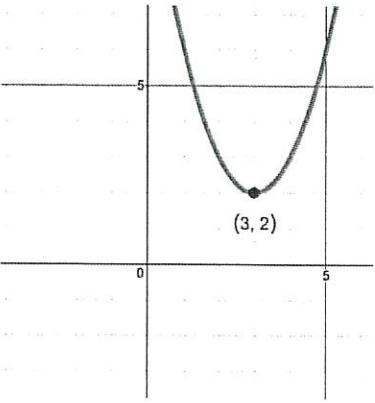
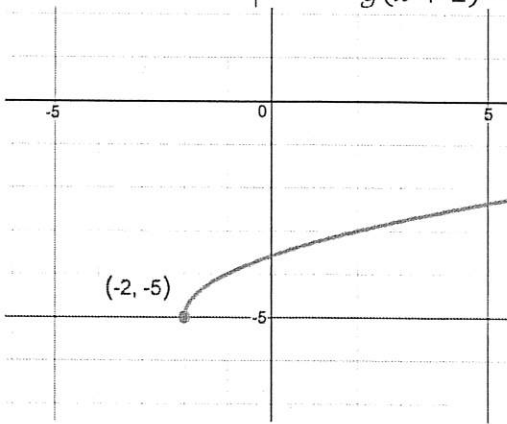


PC 1-6 (Transformations Exploration 1)

key

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 $g(x) = \sqrt{x}$ $g(x + 2) - 5$
			

Original Function	Describe the transformation
$h(x + 2) + 6$	<i>"The graph moves left two units and up 6 units"</i>
$f(x + 5) - 3$	<i>Shift left 5 and down 3</i>
$g(x - 7) + 2$	<i>Shift right 7 and up 2</i>
$m(x + 4) - 7$	<i>Shift left 4 and down 7</i>

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

your choice ↗

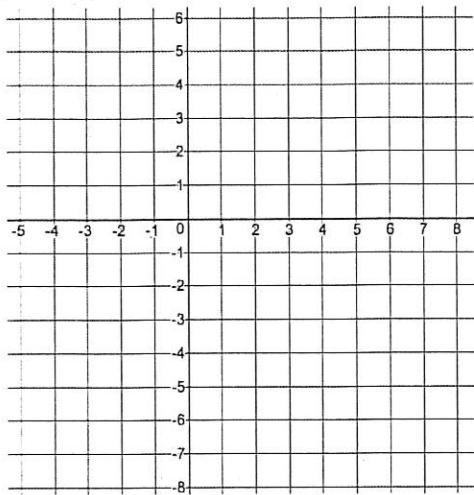
Guess the Glue In

Graph both equations on the same graph below.

Let $f(x) = x^2$

Graph #1: $f(x) = x^2$

Graph #2: $f(x - 4) - 7$



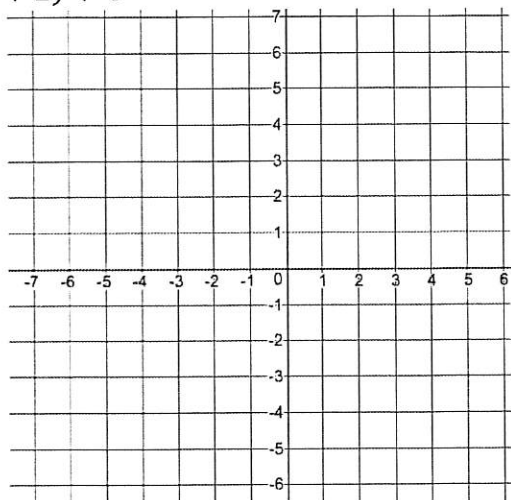
Looking Ahead: What would the transformation $2f(x - 3) + 3$ do to the original graph?

Graph both equations on the same graph below.

Let $g(x) = \sqrt{x}$

Graph #1: $g(x) = \sqrt{x}$

Graph #2: $g(x + 2) + 4$



Looking Ahead: What would the transformation $-3g(x) - 7$ do to the original graph?

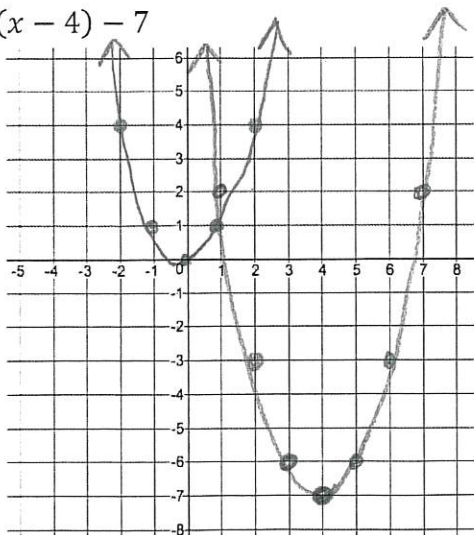
The REAL Glue In

Graph both equations on the same graph below.

Let $f(x) = x^2$

Graph #1: $f(x) = x^2$

Graph #2: $f(x - 4) - 7$



Looking Ahead: What would the transformation $2f(x - 3) + 3$ do to the original graph?

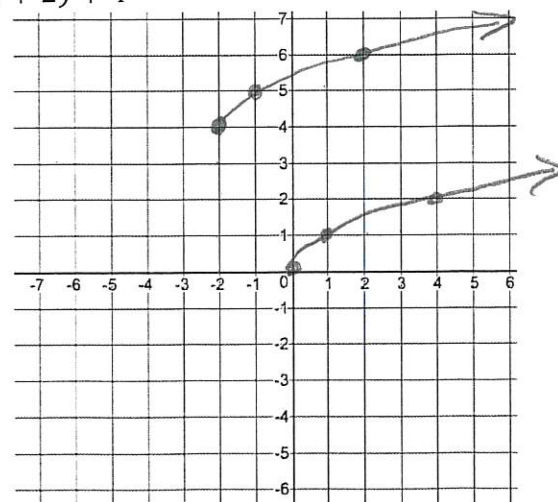
It would stretch the graph vertically and shift the graph right 3 and up 3

Graph both equations on the same graph below.

Let $g(x) = \sqrt{x}$

Graph #1: $g(x) = \sqrt{x}$

Graph #2: $g(x + 2) + 4$



Looking Ahead: What would the transformation $-3g(x) - 7$ do to the original graph?

It would reflect and stretch the graph vertically and shift it 7 units down