Combinations of Transformations
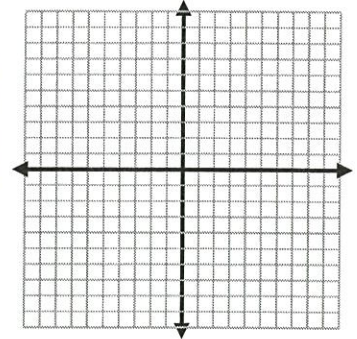
1. Given the function $y = f(x)$ and point on the graph (2,6) determine the transformed point,

$y = \dfrac{1}{2} f(x+4) - 5$

	(2,6)
• VS of ½	(2,3)
• HT 4 left	(-2,3)
• VT 5 down	(-2,-2)

$(-2,-2)$
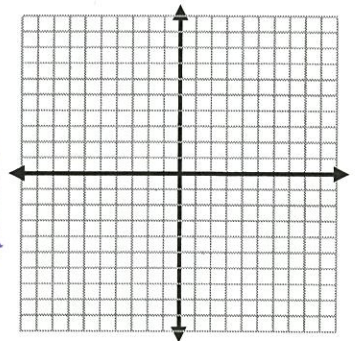
2. Given the function $y = f(x)$ and point on the graph (6,-2) determine the transformed point, $y = \dfrac{1}{2} f(2(x+4)) - 3$

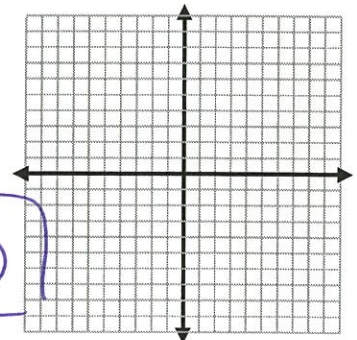|	(6,-2)
• VS of ½	(6,-1)
• HS of ½	(3,-1)
• HT 4 left	(-1,-1)
• VT 3 down	(-1,-4)

$(-1,-4)$

3. Given the function $y = f(x)$ and point on the graph (8,-1) determine the transformed point, $y = 3f(2x-6) - 4$

$y = 3f[2(x-3)] - 4$

	(8,-1)
• VS of 3	(8,-3)
• HS of ½	(4,-3)
• HT 3 right	(7,-3)
• VT 4 down	(7,-7)

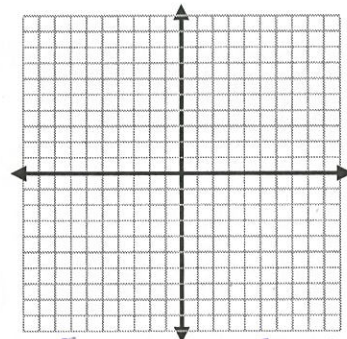$(7,-7)$

4. Given the function $y = f(x)$ and point on the graph (-4,2) determine the transformed point, $y = -f(2(x-5)) + 6$

	(-4,2)
• VR	(-4,-2)
• HS of ½	(-2,-2)
• HT 5 right	(3,-2)
• VT 6 up	(3,4)

$\boxed{(3,4)}$

5. Given the function $y = f(x)$ has been transformed to, $y = 3f(-x+5) - 1$, and a point on the transformed function is (-3, 8), what is the corresponding point on $y = f(x)$

$y = 3f[-1(x-5)] - 1$

*backwards

	(-3,8)
• VT up 1	(-3,9)
• HT left 5	(-8,9)
• HR	(8,9)
• VS of ⅓	(8,3)

$\boxed{(8,3)}$

6. Given $y = f(x) = \sqrt{x}$, sketch the graph of $y = f(x)$ and the graph of $y = 2f(-x-3) + 4$. Write the equation for the transformed function
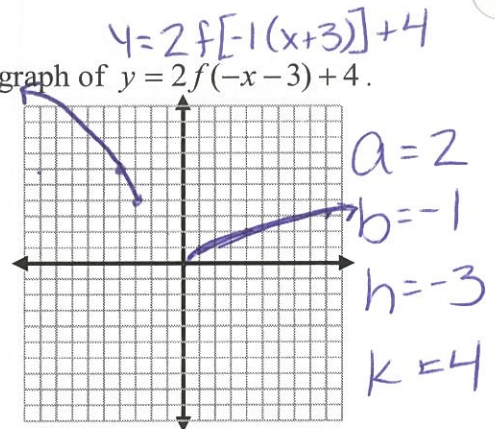
$y = 2f[-1(x+3)] + 4$

$a = 2$
$b = -1$
$h = -3$
$k = 4$

New Equation:

$y = \sqrt{x}$

$y = 2\sqrt{x}$

$y = 2\sqrt{-(x+3)}$

$\boxed{y = 2\sqrt{-(x+3)} + 4}$

Summary: Make sure the equation is in simplified form before you begin transforming. Then perform in the order Stretches/Reflections, then Translations **unless otherwise stated.**