CCSS Advanced Algebra 3 AA4: Transformations Review Name_____

Part 1: Write the expression that fits each blank. Then name the transformation(s).

$f(x) = x^2$ $g(x) = |x|$ $h(x) = \sqrt{x}$ $j(x) = x^3$ $k(x) = \sqrt[3]{x}$

Expression	$f(x+2) =$ _____	$2g(x) =$ _____	$h(x) - 4 =$ _____	$j(0.1x) =$ _____
Transformation				
Expression:	$2k(x-1) =$ _____	$g(2x) + 4 =$ _____	$f(2(x-5)) =$ _____	$4h(x) + 3 =$ _____
Transformation				

Part 2: Write the equation for each function described below:

1. Parent *Quadratic function* ($y = x^2$) is reflected over the x-axis, translated down 4 units and left 2 units.

2. Parent *Cubic function* ($y = x^3$) is stretched vertically by a factor of 3, translated right 5 units and up 1 unit.

3. Parent *Square Root function* ($y = \sqrt{x}$) is reflected over the y-axis, compressed vertically by a factor of $\frac{1}{2}$ and translated left 4 units.

4. Parent *Cube Root function* ($y = \sqrt[3]{x}$) is reflected over the y-axis, compressed horizontally by a factor of 8 and translated up 3.

5. Parent *Absolute Value function* ($y = |x|$) is stretched vertically by a factor of 2, translated right 3 units and reflected over the x-axis.

6. Parent *Linear function* ($y = x$) is reflected over the x-axis, stretched vertically by a factor of 4 and translated right 2 units.

Part 3: Find the exact equation of each function described below.

1. Parent *quadratic function* with a vertex of (2,-3) that passes through the point (3,12)

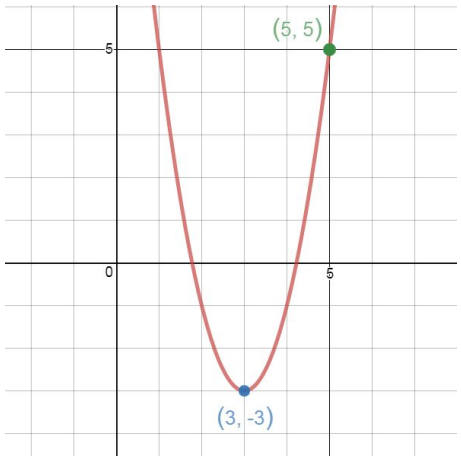
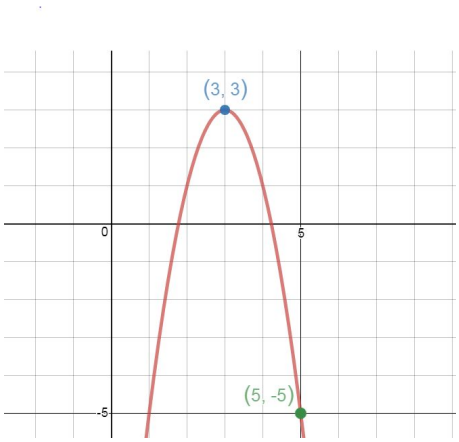
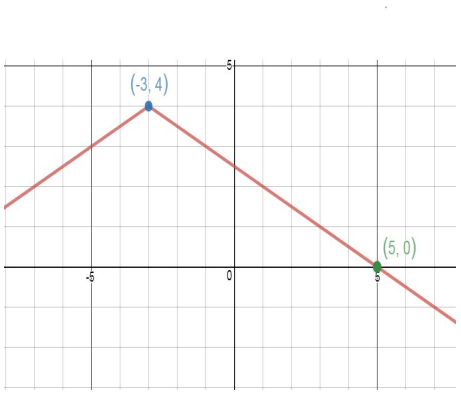
2. Parent *cubic function* with an inflection point of (-4, -3) that passes through the point (-5,2)

3. Parent *square root* function with a vertex of (3,5) that passes through the point (7,-3)

4. Parent *cube root* function with an inflection point of (-1,-1) that passes through the origin

5. Parent *absolute value* function with a vertex of (7, -3) that passes through the origin

Part 4: Find the exact equation of each graph below: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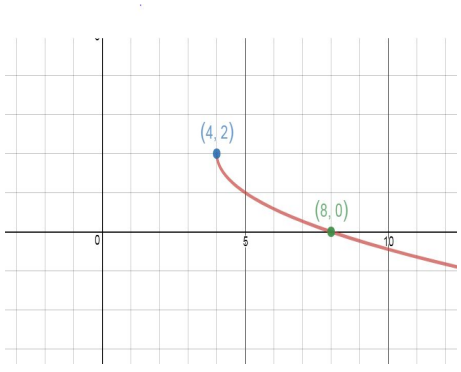	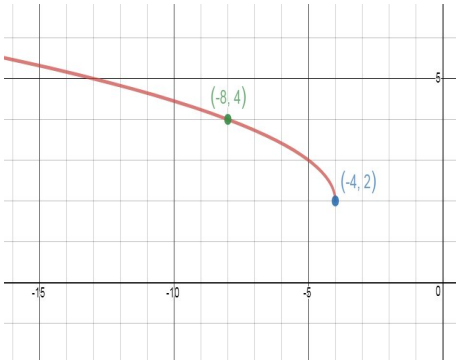	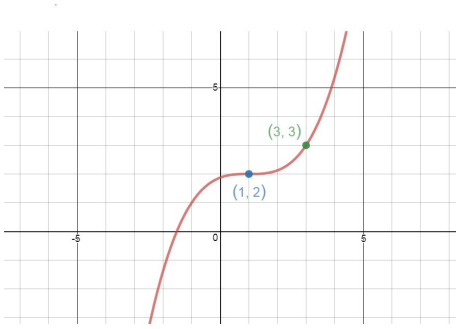
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