Algebra 2 Unit 1 quiz 2: Reflecting a graph across the axes, Stretches and compressions, Combining transformations and the general form

Name _____ Date _____ Period _____

8 questions, 22 points

1. Let $f(x) = x^2 - 5x - 7$, $g(x) = -f(x)$ and $h(x) = f(-x)$. Find $g(4)$ and $h(4)$. (2 points)

2. The graph of a function f has its highest point at $(-9, 3)$. Let $g(x) = 4\,f(2x - 5) + 2$. Find the point of g that comes from it, and say whether it is the highest or the lowest point of g. (2 points)

3. Let $f(x) = x^2 + 8x$ and $g(x) = f\left(\frac{1}{2}x\right)$. (3 points)

(a) Name the move from the graph of f to the graph of g, with its factor.

(b) Find the x-intercepts and the vertex of the graph of f. Use them to give the x-intercepts and the vertex of the graph of g.

(c) Write $g(x)$ as a polynomial in x, and give the range of g.

4. The rule $y = -\frac{1}{2}(8 - 4x)^3 + 9$ is built from $y = x^3$. (3 points)

(a) Give a, b, h and k.

(b) Describe the moves in order.

(c) Where do the parent's center $(0, 0)$ and its point $(1, 1)$ go?

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5. Here are a table for a function f and a table for a function g.

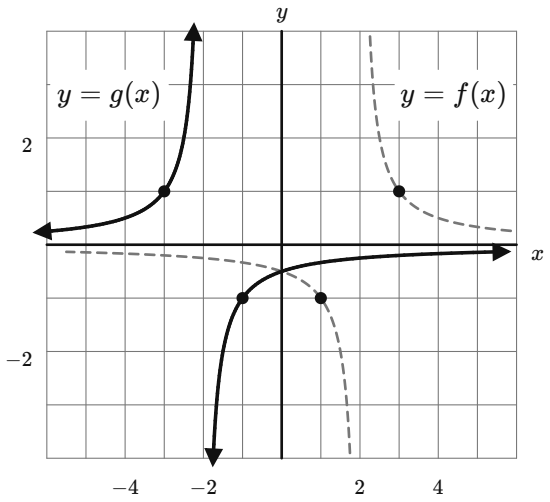
x	-3	-1	0	2	4
$f(x)$	6	-2	1	5	-4

x	-4	-2	0	1	3
$g(x)$	-4	?	1	?	6

The function g is either $-f(x)$ or $f(-x)$, and every entry in its table was worked out from an entry in the table of f. Decide which it is, giving a reason, and fill in the two missing entries. (3 points)

6. The dashed graph is $f(x) = \dfrac{1}{x-2}$. The solid graph g is the graph of f reflected across one of the axes. (3 points)

(a) Which axis? Give a reason from matching points.



(b) Write a rule for $g(x)$ and give the domain of g.

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7. A river gauge at a town bridge reports the water level $L(t)$, in inches above (positive) or below (negative) normal, t hours after midnight. The town's flood app shows the same readings in feet, $F(t) = \frac{1}{12}L(t)$.

(3 points)

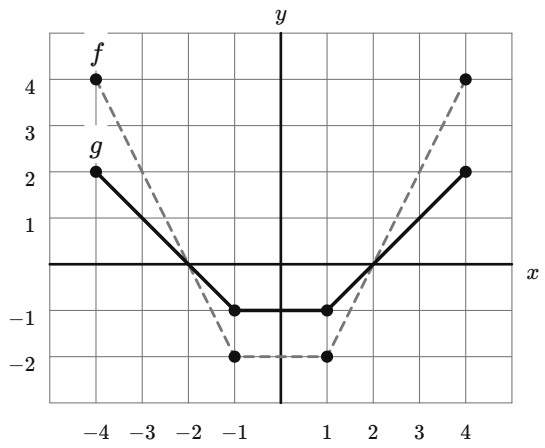
t	0	3	6	9	12
$L(t)$	-6	0	18	30	9

(a) Name the move from the graph of L to the graph of F.

(b) Make a table for F, in decimals.

(c) The app sounds an alert when the level reaches 2.25 feet above normal. What gauge reading, in inches, is that?

8. In the figure, the solid graph g is the dashed graph f after a vertical stretch or compression, $g(x) = a\,f(x)$. (3 points)



(a) Find a, check it with a second pair of points, and name the move.

(b) Which points of the graph of f did not move?

(c) Give the range of f and the range of g.

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