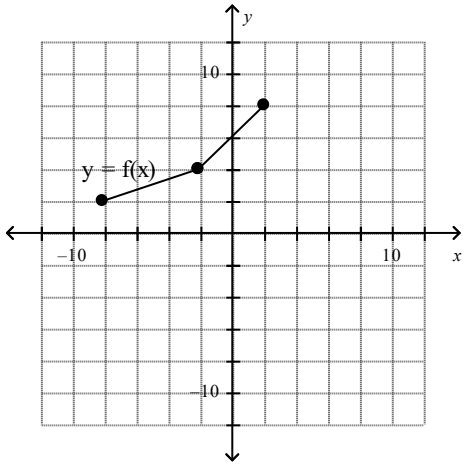
Pre-Calculus 30 – Unit 3 – Transforming
Practice Test

Name: _____
Date: _____

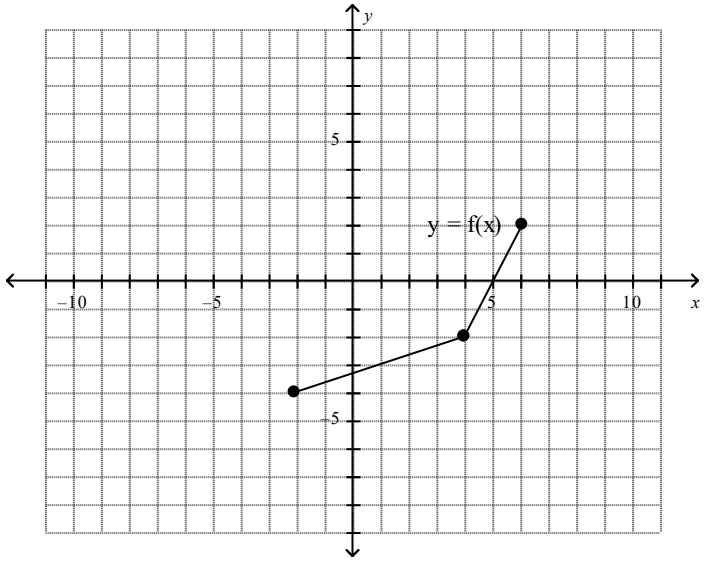
# Unit 3 – Transforming Graphs of Functions – Practice Test

1. The function $y = f(x)$ has domain $-9 \le x \le 5$ and range $-7 \le y \le 11$. What are the domain and range of $y + 4 = f(x + 2)$?

2. Here is the graph of $y = f(x)$. On the same grid, sketch the graph of $y = -f(x)$.




3. Here is the graph of $y = f(x)$. On the same grid, sketch the graph of $y = -\frac{1}{2} f(2x)$. State the domain and range of each function.



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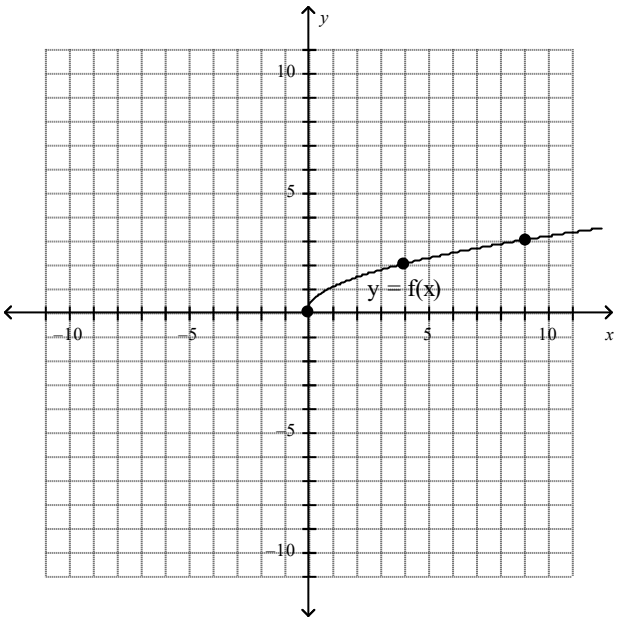
4. Determine the equation of the function $y = \frac{(x-2)^3}{x-4}$ after a vertical compression by a factor of $\frac{1}{2}$, a horizontal compression by a factor of $\frac{1}{2}$, a reflection in the *y*-axis, and a reflection in the *x*-axis.

5. Describe how the graph of $y - 3 = \frac{1}{2} f(-2(x-3))$ is related to the graph of $y = f(x)$.

6. Here is the graph of $y = f(x)$. The graph of $y = f(x)$ is transformed by: a vertical compression by a factor of $\frac{1}{2}$, a horizontal compression by a factor of $\frac{1}{2}$, no reflection, and a translation of 3 units left and 2 units down. Write an equation of the image graph in terms of the function *f.* Sketch the image graph, then state its domain and range.




7. The graph of $y = |x|$ is vertically compressed by a factor of $\frac{1}{3}$, horizontally compressed by a factor of $\frac{1}{3}$, reflected in the y-axis, then translated 3 units left and 4 units down. Write an equation of the image graph in terms of *x.*

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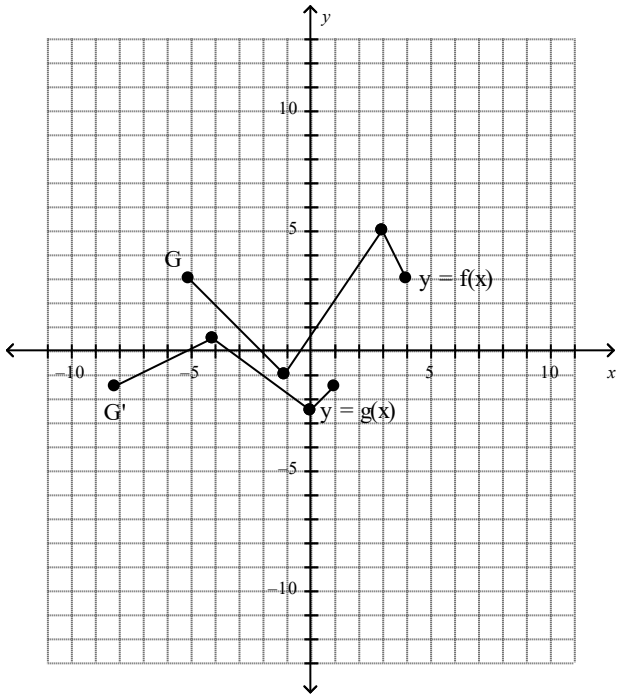
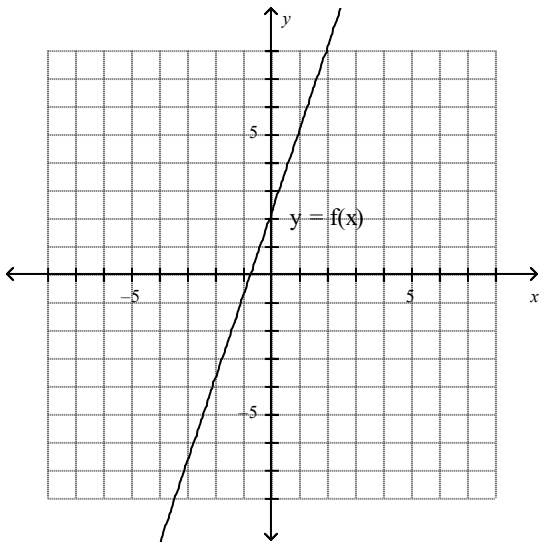
8. The graph of $y = g(x)$ is the image of the graph of $y = f(x)$ after a combination of transformations. Write an equation for the transformations.




9. Determine whether these functions are inverses of each other.

$y = \frac{7x + 6}{2}$ $y = \frac{2x + 6}{7}$

10. Here is the graph of $y = f(x)$. On the same grid, sketch the graph of its inverse.



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12. Determine two ways to restrict the domain of $y = -x^2 + 5$ so that its inverse is a function. Write the equation of the inverse each time. Use a graph to illustrate each way. State the domain of the restricted f(x), and state the domain of the inverse function.