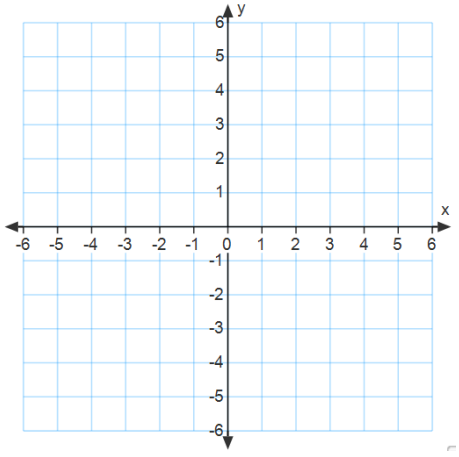
September 25, 2024

Review for Test #2
Topics
Transformations of Functions
Reflections, Vertical and Horizontal shifts
Combinations of Functions
Compositions of Functions

Donow:

1. Write the equation for the graph of function $g(x)$, obtained by shifting the graph of $f(x) = x^2$ three units left, stretching the graph vertically by a factor of two, reflecting that result over the x-axis, and then translating the graph up four units.



Given the graph of the function $f(x)$ shown below, sketch the graphs of:

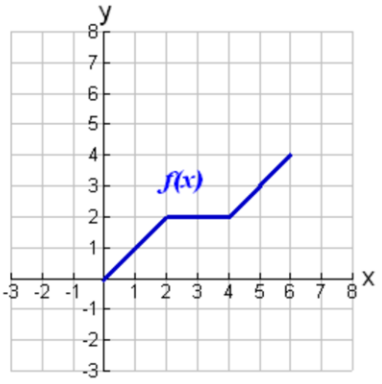
a. $f(x+1)$

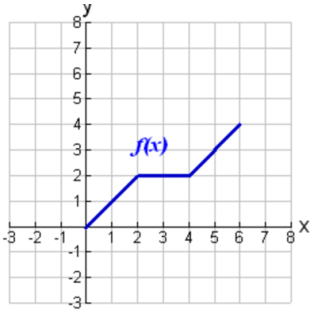
b. $f(x)-2$

c. $f(-x)$

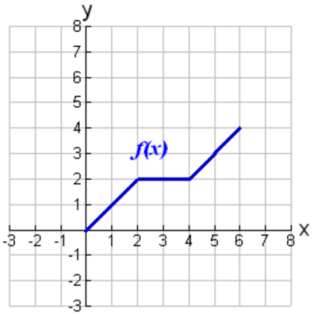
d. $-f(x)$

e. $2f(x)$

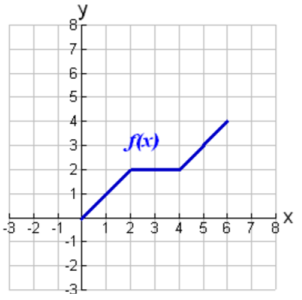




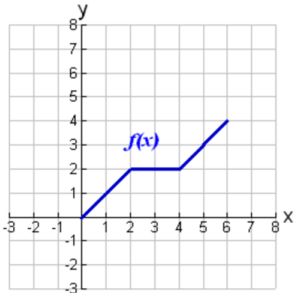
b. $f(x)-2$



c. $f(-x)$



d. $-f(x)$



e. $2f(x)$

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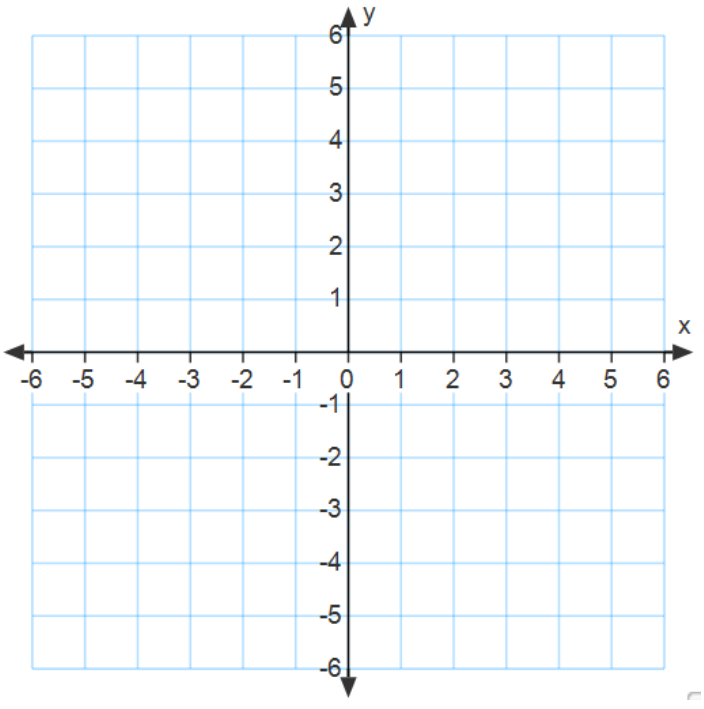
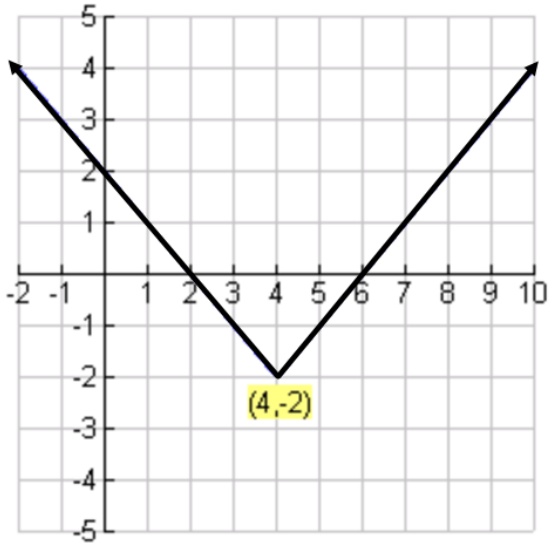
Graph the two functions :

$f(x) = |x| + 3$ $g(x) = |x + 3|$



Write the equation for the graph shown at the right. Assume that the parent function was

$$y = |x|.$$



Using $f(x) = x - 2$ and $g(x) = 5x + 3$,
find: **a.** $f(g(2))$
b. $g(f(-4))$
c. $f(f(1))$
d. $f(g(x))$

Using $f(x) = x - 2$ and $g(x) = 5x + 3$,
find: **a.** $f(g(2))$
b. $g(f(-4))$
c. $f(f(1))$
d. $f(g(x))$

$f(x) = 3x + k$ and $g(x) = \dfrac{x-4}{3}$

For what value of k is $f(g(x)) = g(f(x))$?

$f(x) = \dfrac{x}{x+1}$ and $g(x) = \dfrac{1}{x-2}$

Find the domain of $(f \circ g)(x)$.

Find $(f \circ f^{-1})(5)$

Find the inverse for the function $y = 4x + 12$.

Find the inverse for the function

$$y = (x + 2)^3$$

Find the inverse for the function

$$y = \frac{x+3}{x}$$

(where x is not zero).

Using composition of functions, show that

$f(x) = 2x - 3$ and $g(x) = 0.5x + 1.5$

are inverse functions.

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