Math 1100: Section 2.5

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Describe the transformations that produce the graph of g from the graph of f.

1) $f(x) = x^2$; $g(x) = (x - 7)^2 - 9$

A) Shift 7 units to the left and 9 units upward.

B) Shift 9 units to the right and 7 units downward.

C) Shift 7 units to the right and 9 units downward.

D) Shift 7 units to the left and 9 units downward.

2) $f(x) = \sqrt{x}$; $g(x) = -\sqrt{x + 9}$

A) Shift 9 units to the right. Reflect it across the x-axis.

B) Shift -9 units to the left. Reflect it across the x-axis.

C) Shift 9 units to the left. Reflect it across the x-axis.

D) Shift 9 units to the left. Reflect it across the y-axis.

3) $f(x) = \frac{1}{x}$; $g(x) = \frac{11}{x} + 4$

A) Stretch vertically by a factor of 11. Shift it 4 units up.

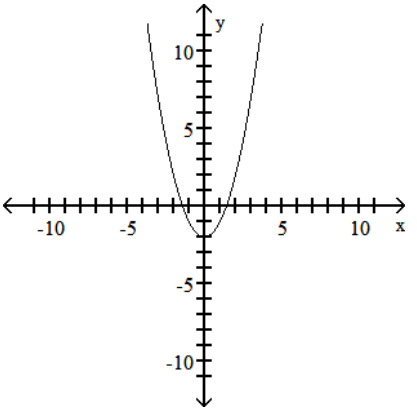
B) Stretch vertically by a factor of $\frac{1}{11}$. Shift it 4 units up.

C) Shift it 11 units to the left and 4 units down.

D) Shift it 11 units to the right and 4 units up.

Match the graph with its corresponding function.

4)



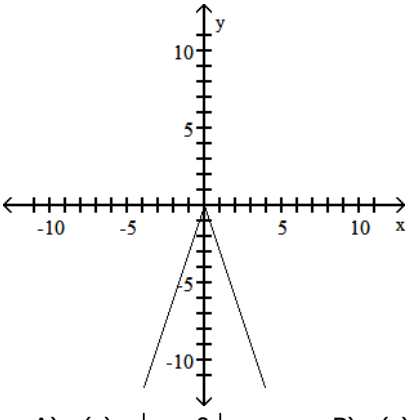
A) $g(x) = 2x^2$

B) $g(x) = x^2 + 2$

C) $g(x) = x^2 - 2$

D) $g(x) = (x - 2)^2$

5)



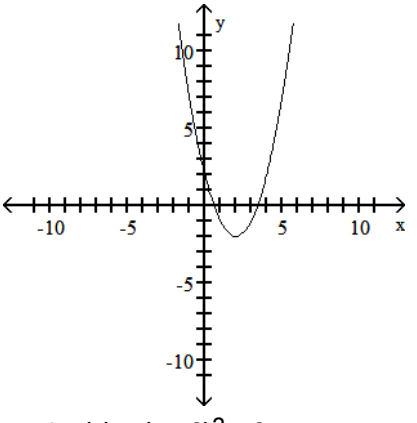
A) $g(x) = |x - 3|$

B) $g(x) = |x| - 3$

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

D) $g(x) = -3|x|$

6)



A) $g(x) = (x - 2)^2 - 2$

B) $g(x) = 5(x + 2)^2$

C) $g(x) = -5(x - 2)^2$

D) $g(x) = (x - 5)^2 - 2$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Graph the function by starting with a function from the library of functions and then using the techniques of shifting, compressing, stretching, and/or reflecting.

7) $g(x) = (x + 3)^3$

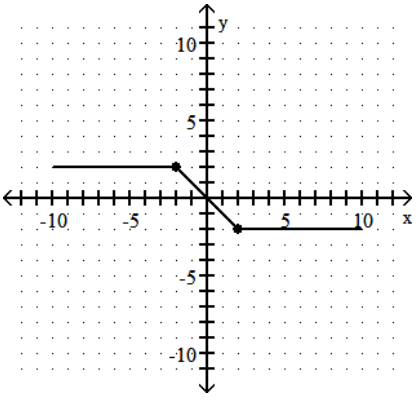
8) $g(x) = (x - 2)^2 - 4$

9) $g(x) = -\sqrt{x + 1} + 1$

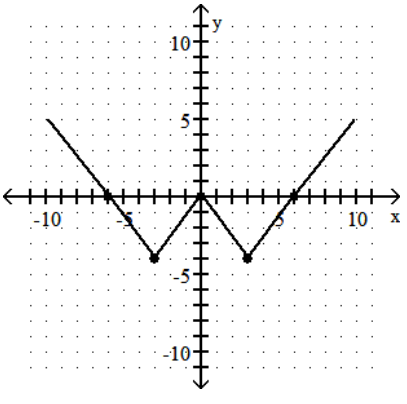
10) $g(x) = \frac{1}{2}|x + 6| - 2$

Graph the function y = g(x), given the graph of y = f(x).

11) g(x) = 2f(x)



12) $g(x) = -\frac{1}{2}f(x)$



Graph the function.

13) $f(x) = \begin{cases} 2, \text{ if } x \geq 1 \\ -1 - x, \text{ if } x < 1 \end{cases}$

14) $f(x) = \begin{cases} x - 1, \text{ if } x > 0 \\ -5, \text{ if } x \leq 0 \end{cases}$

15) $f(x) = \begin{cases} 3x^2 \text{ if } x \leq -1 \\ 3 \quad \text{if } -1 < x < 1 \\ 3x+1 \text{ if } x \geq 1 \end{cases}$