MAC1105 College Algebra
Review 01 Spring of 2021

Solve the radical equation, and check all proposed solutions.

1) $x - \sqrt{3x - 2} = 4$ 1) _____

A) {2, 9} B) {1, 2} C) {-1} D) {9}

2) $\sqrt{2x} + 8 = x + 4$ 2) _____

A) {-4} B) $\left\{-4, \frac{4}{3}\right\}$ C) {2, 8} D) {8}

Solve and check the equation.

3) $(4x + 5)^{1/3} = -4$ 3) _____

A) $\left\{\frac{11}{4}\right\}$ B) $\left\{-\frac{69}{4}\right\}$ C) $\{-16\}$ D) $\left\{-\frac{68}{5}\right\}$

4) $x^{3/2} = 27$ 4) _____

A) {9} B) $\left\{3\sqrt{3}\right\}$ C) $\{81\sqrt{3}\}$ D) {3}

Solve the linear inequality. Other than $\emptyset$, use interval notation to express the solution set.

5) $8x - 4 \geq 7x - 8$ 5) _____

A) $(-\infty, -4]$ B) $(-12, \infty)$ C) $[-4, \infty)$ D) $(-\infty, -4)$

Solve the absolute value inequality. Other than $\emptyset$, use interval notation to express the solution set.

6) $|3(x + 1) + 6| \leq 9$ 6) _____

A) (-4, 2) B) [-4, 2] C) [-6, 0] D) (-6, 0)

7) $5 + \left|1 - \frac{x}{2}\right| \geq 8$ 7) _____

A) [-4, 8] B) $(-\infty, -4] \cup [8, \infty)$ C) $(-\infty, -8] \cup [4, \infty)$ D) [-8, 4]

Determine whether the relation is a function.

8) {(3, 8), (3, -9), (5, 4), (7, 1), (11, -8)} 8) _____

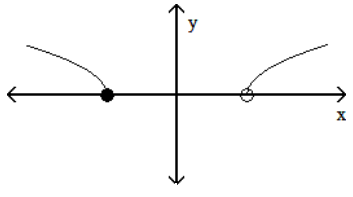
A) Not a function B) Function

9) {(-6, 4), (-3, -4), (2, 3), (7, -9)} 9) _____

A) Function B) Not a function

Use the vertical line test to determine whether or not the graph is a graph in which y is a function of x.

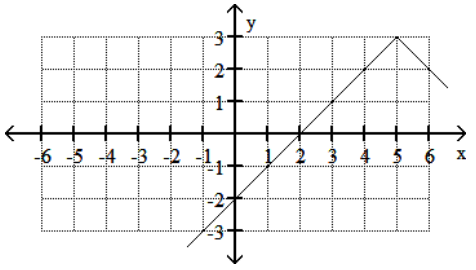
10) 10) _____



A) not a function B) function

Use the graph to determine the function's domain and range.

11) 11) _____



A) domain: $(-\infty, \infty)$
range: $(-\infty, \infty)$

B) domain: $(-\infty, 5)$ or $(5, \infty)$
range: $(-\infty, 3)$ or $(3, \infty)$

C) domain: $(-\infty, \infty)$
range: $(-\infty, 3]$

D) domain: $(-\infty, 5]$
range: $(-\infty, 3]$

Determine whether the given function is even, odd, or neither.

12) $f(x) = -3x^5 + x^3$ 12) _____

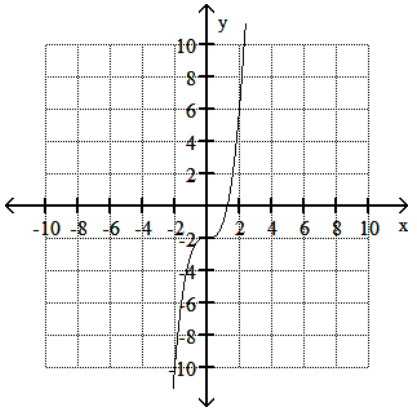
A) Neither B) Odd C) Even

13) $f(x) = x^3 + x^2 - 4$ 13) _____

A) Even B) Odd C) Neither

Use possible symmetry to determine whether the graph is the graph of an even function, an odd function, or a function that is neither even nor odd.

14) 14) _____



A) Even B) Neither C) Odd

Evaluate the piecewise function at the given value of the independent variable.

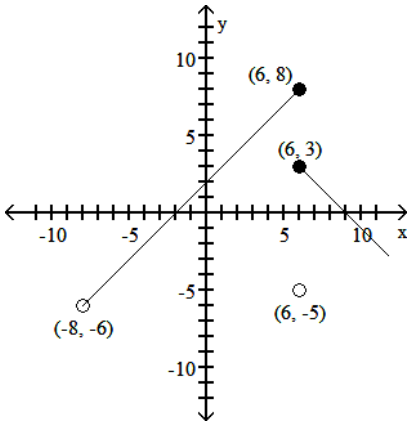
15) $g(x) = \begin{cases} \dfrac{x^2 - 6}{x + 6} & \text{if } x \neq -6 \\ x + 2 & \text{if } x = -6 \end{cases}$; $g(5)$ 15) _____

A) $-\dfrac{1}{11}$ B) $\dfrac{19}{11}$ C) 7 D) 5

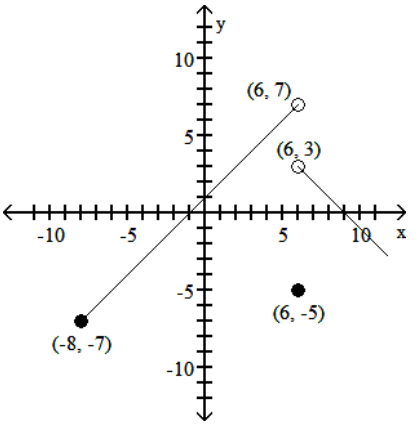
Graph the function.

16) $f(x) = \begin{cases} x + 1 & \text{if } -8 \le x < 6 \\ -5 & \text{if } x = 6 \\ -x + 9 & \text{if } x > 6 \end{cases}$ 16) _____

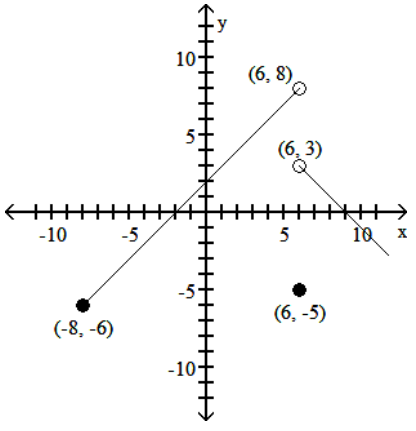
A)



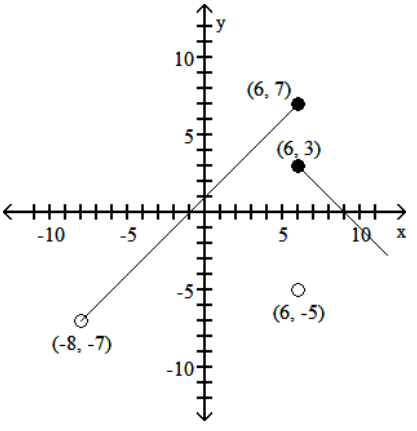
B)



C)



D)



Find and simplify the difference quotient $\frac{f(x + h) - f(x)}{h}$, $h \neq 0$ for the given function.

17) $f(x) = 3x + 3$ 17) _____

A) 3 B) 0 C) $3 + \frac{6(x + 3)}{h}$ D) $3 + \frac{6}{h}$

Find the slope of the line that goes through the given points.

18) (-8, -7), (9, -4) 18) _____

A) - 13 B) $\frac{3}{17}$ C) $\frac{17}{3}$ D) $-\frac{1}{13}$

Use the given conditions to write an equation for the line in slope-intercept form.

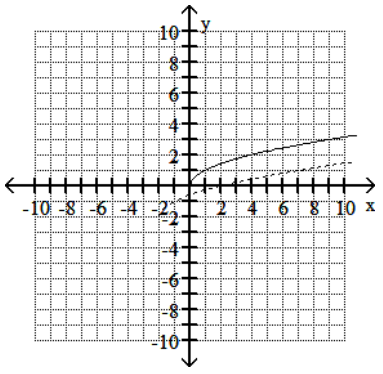
19) Slope = -4, passing through (-8, 2) 19) _____

A) $y = -4x - 30$ B) $y - 2 = x + 8$ C) $y = -4x + 30$ D) $y - 2 = -4x + 8$

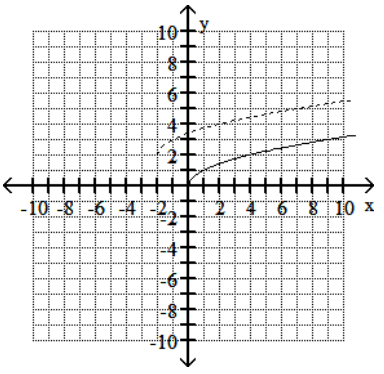
Begin by graphing the standard square root function $f(x) = \sqrt{x}$. Then use transformations of this graph to graph the given function.

20) $g(x) = -\sqrt{x + 2} + 2$ 20) _____

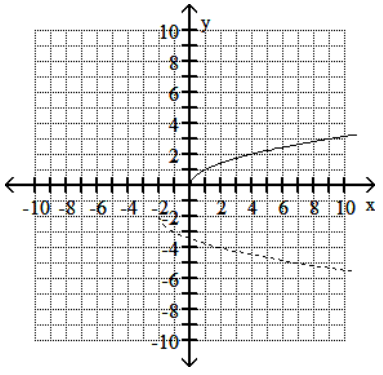
A)



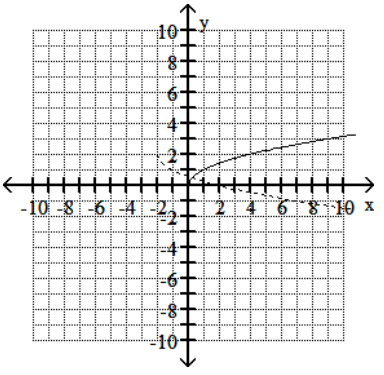
B)



C)

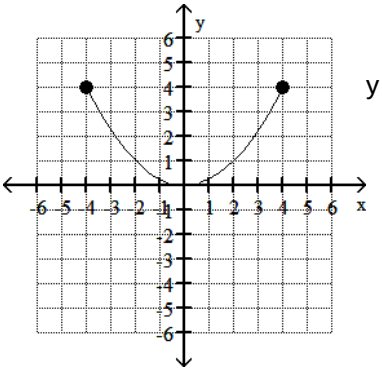


D)



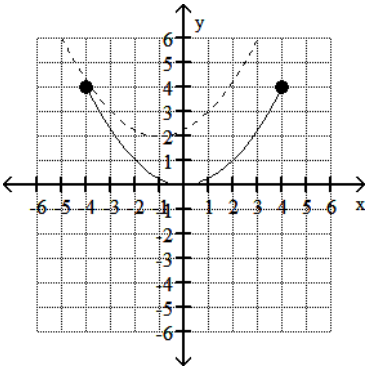
Use the graph of the function f, plotted with a solid line, to sketch the graph of the given function g.

21) g(x) = f(x + 1) + 2 21) _____

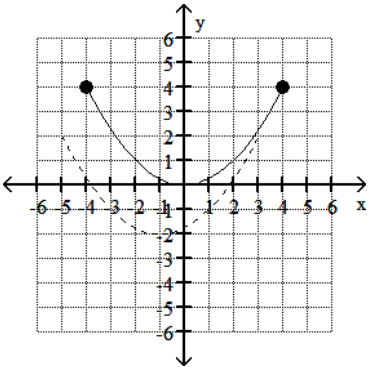


y = f(x)

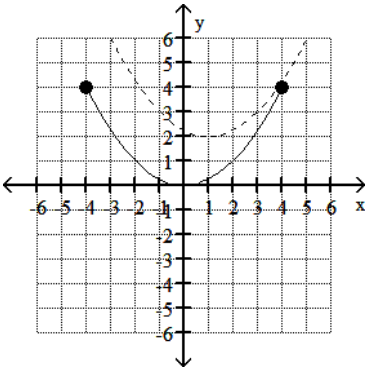
A)



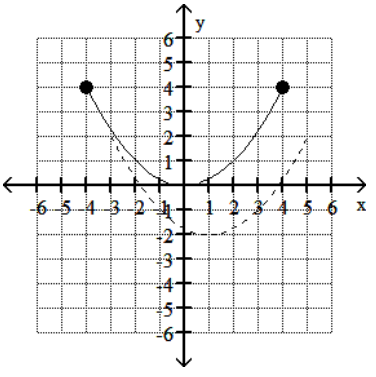
B)



C)



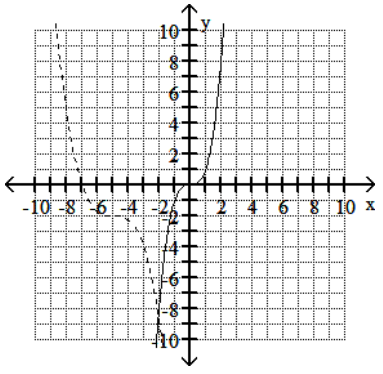
D)



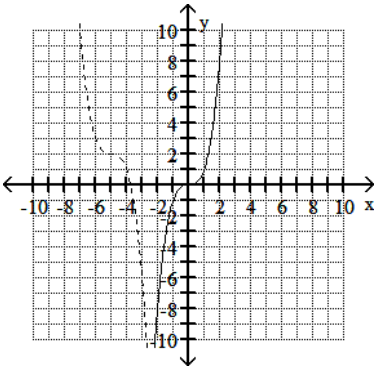
Begin by graphing the standard cubic function $f(x) = x^3$. Then use transformations of this graph to graph the given function.

22) $g(x) = -(x + 5)^3 - 2$ 22) _____

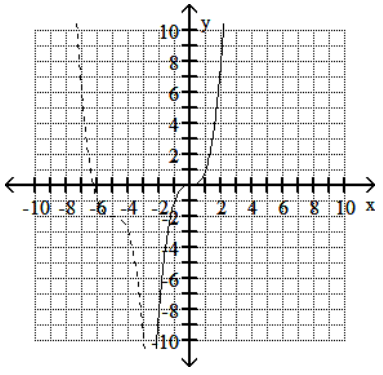
A)



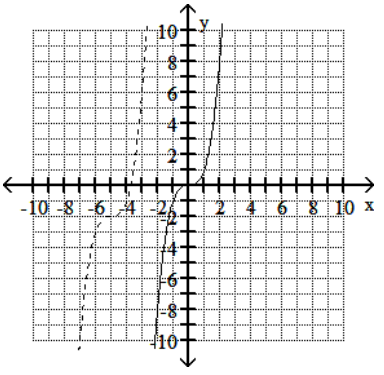
B)



C)

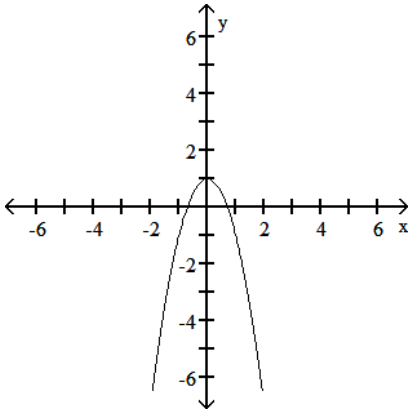


D)



Match the correct function to the graph.

23) 23) _____



A) $y = -2x^2$ B) $y = 2 - x^2$ C) $y = -2x^2 + 1$ D) $y = -2x^2 - 1/2$

Answer Key
Testname: REVIEW01_MAC1105

1) D
2) D
3) B
4) A
5) C
6) C
7) B
8) A
9) A
10) B
11) C
12) B
13) C
14) B
15) B
16) B
17) A
18) B
19) A
20) D
21) A
22) C
23) C