

Given functions f and g , perform the indicated operations.

1) $f(x) = 6 - 6x$, $g(x) = -8x + 6$ 1) _____
Find $f + g$.
A) $-2x$ B) $2x + 12$ C) $-14x + 12$ D) $-8x + 6$

2) $f(x) = 4x - 3$, $g(x) = 9x - 8$ 2) _____
Find $f - g$.
A) $13x - 11$ B) $x - 5$ C) $-5x + 5$ D) $-5x - 11$

3) $f(x) = 4x - 3$, $g(x) = 3x - 7$ 3) _____
Find fg .
A) $12x^2 + 21$ B) $7x^2 - 37x - 10$ C) $12x^2 - 16x + 21$ D) $12x^2 - 37x + 21$

For the given functions f and g , find the indicated composition.

4) $f(x) = -6x + 8$, $g(x) = 3x + 3$ 4) _____
 $(g \circ f)(x)$
A) $18x + 27$ B) $-18x + 26$ C) $-18x + 27$ D) $-18x - 21$

5) $f(x) = \frac{8}{x+4}$, $g(x) = \frac{8}{5x}$ 5) _____
 $(f \circ g)(x)$
A) $\frac{8x}{8+20x}$ B) $\frac{8x+32}{40x}$ C) $\frac{40x}{8-20x}$ D) $\frac{40x}{8+20x}$

6) $f(x) = \frac{x-6}{7}$, $g(x) = 7x+6$ 6) _____
 $(g \circ f)(x)$
A) $x - \frac{6}{7}$ B) $7x + 36$ C) x D) $x + 12$

Find the domain of the composite function $f \circ g$.

7) $f(x) = \frac{5}{x+10}$, $g(x) = x+3$ 7) _____
A) $(-\infty, \infty)$ B) $(-\infty, -10)$ or $(-10, -3)$ or $(-3, \infty)$
C) $(-\infty, -10)$ or $(-10, \infty)$ D) $(-\infty, -13)$ or $(-13, \infty)$

8) $f(x) = \sqrt{x}$; $g(x) = 2x+10$ 8) _____
A) $(-\infty, -5]$ or $[0, \infty)$ B) $[-5, \infty)$
C) $[0, \infty)$ D) $(-\infty, \infty)$

Find the inverse of the one-to-one function.

9) $f(x) = -6x - 1$

A) $f^{-1}(x) = \frac{-6x + 1}{-6}$

B) $f^{-1}(x) = \frac{x - 1}{-6}$

C) $f^{-1}(x) = \frac{y + 1}{-6}$

D) $f^{-1}(x) = \frac{x + 1}{-6}$

9) _____

10) $f(x) = \frac{5}{8x - 1}$

11) $f(x) = \sqrt{x + 8}$

A) $f^{-1}(x) = \frac{1}{x^2 - 8}$

B) $f^{-1}(x) = x - 8$

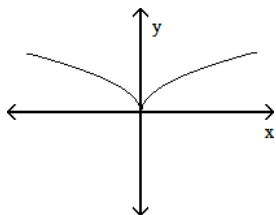
C) $f^{-1}(x) = x^2 + 8$

D) $f^{-1}(x) = x^2 - 8$

11) _____

Does the graph represent a function that has an inverse function?

12)



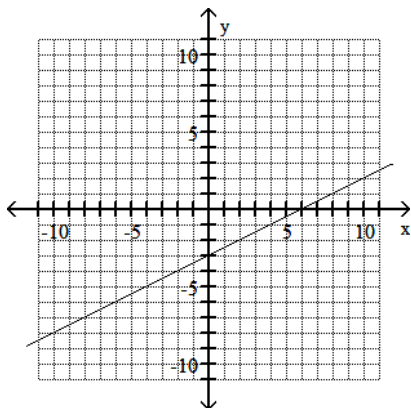
A) Yes

B) No

12) _____

Use the graph of f to draw the graph of its inverse function.

13)



Find the distance between the pair of points.

14) $(6, -1)$ and $(-2, 1)$

A) $60\sqrt{15}$

B) $2\sqrt{17}$

C) 60

D) 10

14) _____

Find the midpoint of the line segment whose end points are given.

15) $(-8, -4)$ and $(6, 8)$

A) $(-2,)$

B) $(-1, 2)$

C) $(-14, -12)$

D) $(-7, -6)$

15) _____

Write the standard form of the equation of the circle with the given center and radius.

16) $(0, 10); 9$

A) $x^2 + (y - 10)^2 = 81$

B) $(x + 10)^2 + y^2 = 81$

C) $x^2 + (y + 10)^2 = 9$

D) $(x - 10)^2 + y^2 = 81$

16) _____

Find the center and the radius of the circle.

17) $(x + 6)^2 + (y + 1)^2 = 36$

A) $(1, 6), r = 36$

B) $(6, 1), r = 36$

C) $(-1, -6), r = 6$

D) $(-6, -1), r = 6$

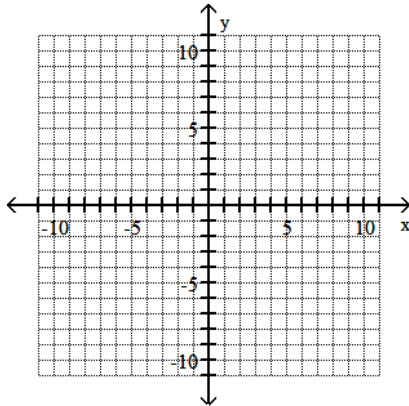
17) _____

Complete the square and write the equation in standard form. Then give the center and radius of the circle.

18) $x^2 + y^2 - 12x - 6y + 33 = 0$

Use the vertex and intercepts to sketch the graph of the quadratic function.

19) $f(x) = 4(x + 4)^2 + 6$



Determine whether the given quadratic function has a minimum value or maximum value. Then find the coordinates of the minimum or maximum point.

20) $f(x) = 4x^2 + 2x + 2$

A) minimum; $\left(\frac{7}{4}, -\frac{1}{4}\right)$

B) minimum; $\left(-\frac{1}{4}, \frac{7}{4}\right)$

C) maximum; $\left(-\frac{1}{4}, \frac{7}{4}\right)$

D) maximum; $\left(\frac{7}{4}, -\frac{1}{4}\right)$

20) _____

21) $f(x) = -3x^2 + 9x$

A) minimum; $\left(-\frac{3}{2}, -\frac{27}{4}\right)$

B) maximum; $\left(\frac{3}{2}, \frac{27}{4}\right)$

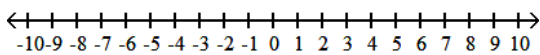
C) minimum; $\left(\frac{3}{2}, \frac{27}{4}\right)$

D) maximum; $\left(-\frac{3}{2}, -\frac{27}{4}\right)$

21) _____

Solve the polynomial inequality and graph the solution set on a number line. Express the solution set in interval notation.

22) $(x + 4)(x + 1) \leq 0$



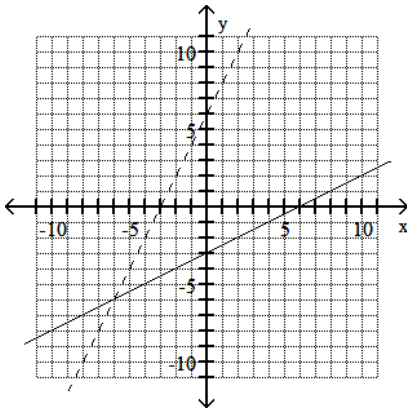
Answer Key

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- 1) C
- 2) C
- 3) D
- 4) C
- 5) D
- 6) C
- 7) D
- 8) B
- 9) D

10) $f^{-1}(x) = \frac{5}{8x} + \frac{1}{8}$

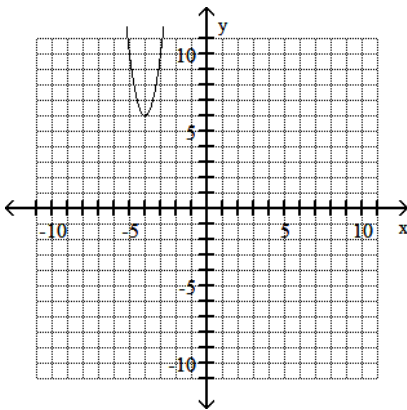
- 11) D
- 12) B
- 13)



- 14) B
- 15) B
- 16) A
- 17) D

18) $(x - 6)^2 + (y - 3)^2 = 12$
 $(6, 3), r = 2\sqrt{3}$

19)



- 20) B
- 21) B

Answer Key

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22) $[-4, -1]$

