MATH 1314 REVIEW EXAM 2 FALL 2015

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

Find the center–radius form of the equation of a circle.

1) center (9, –4), radius 3 1) _____

A) $(x + 9)^2 + (y - 4)^2 = 9$ B) $(x - 4)^2 + (y + 9)^2 = 3$

C) $(x - 9)^2 + (y + 4)^2 = 9$ D) $(x + 4)^2 + (y - 9)^2 = 3$

2) center (0, 0), radius 5 2) _____

A) $x^2 + y^2 = 25$ B) $x^2 + y^2 = \sqrt{5}$ C) $x^2 + y^2 = 10$ D) $x^2 + y^2 = 5$

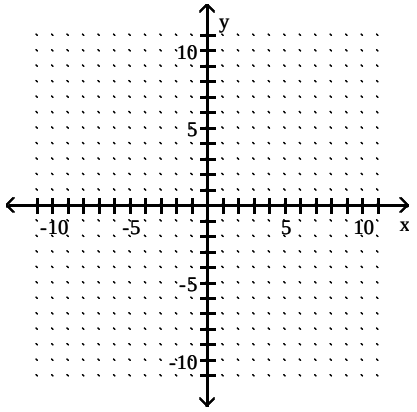
3) center (4, –1), radius $\sqrt{10}$ 3) _____

A) $(x + 1)^2 + (y - 4)^2 = 100$ B) $(x - 4)^2 + (y + 1)^2 = 10$

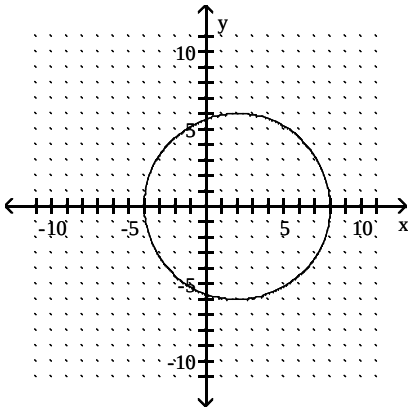
C) $(x + 4)^2 + (y - 1)^2 = 10$ D) $(x - 1)^2 + (y + 4)^2 = 100$

Graph the circle.

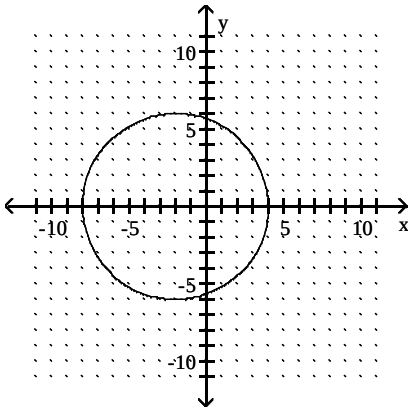
4) $x^2 + (y - 2)^2 = 36$ 4) _____



A)



B)



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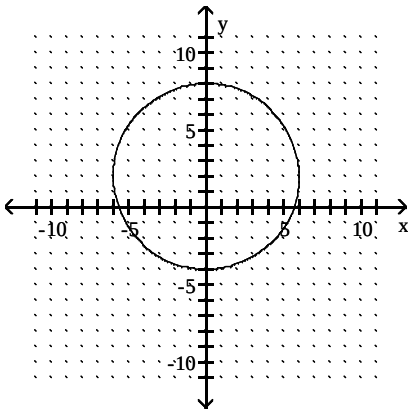
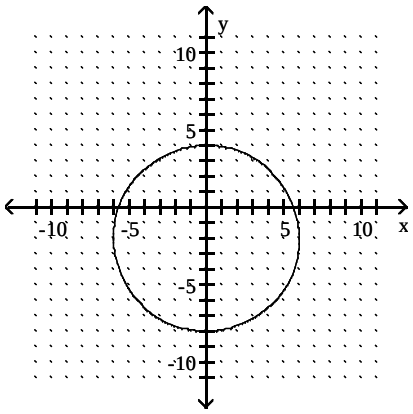
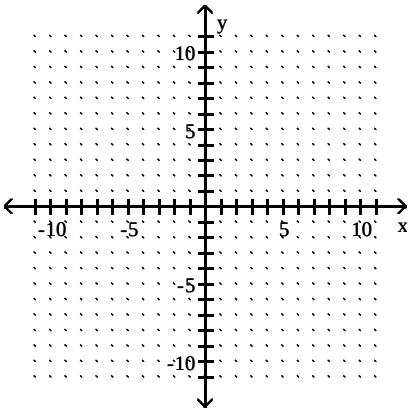


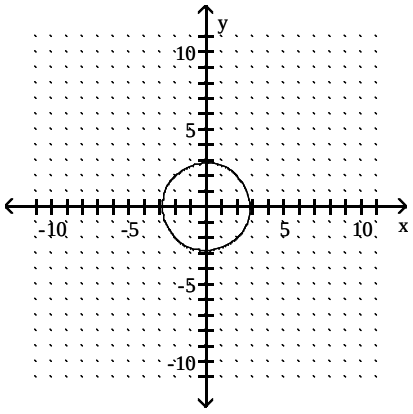
D)



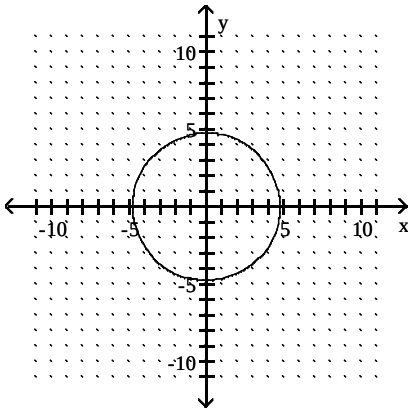
5) $x^2 + y^2 = 64$ 5) _____



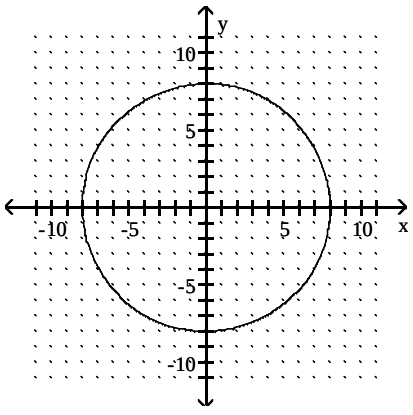
A)



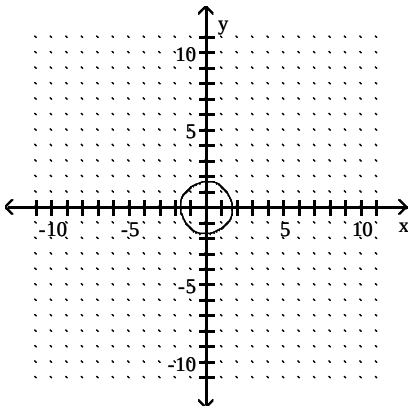
B)



C)



D)



Find the center and radius of the circle.

6) $x^2 + y^2 + 16x - 8y + 31 = 0$ 6) _____

A) (−4, 8); r = 49 B) (8, −4); r = 49 C) (−8, 4); r = 7 D) (4, −8); r = 7

Solve.

7) A circle has a diameter with endpoints (−2, 1) and (18, 5). Find the coordinates of the center. 7) _____

A) (38, 9) B) (−12, −1) C) (8, 3) D) (16, 6)

Decide whether the relation defines a function.

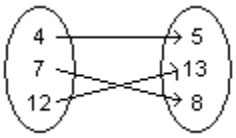
8) {(−1, 5), (2, 3), (6, 7), (9, −3), (12, −8)} 8) _____

A) Function B) Not a function

9) {(−8, 2), (−8, 8), (−1, −2), (6, 2), (9, −2)} 9) _____

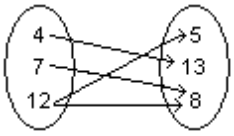
A) Function B) Not a function

10) 10) _____



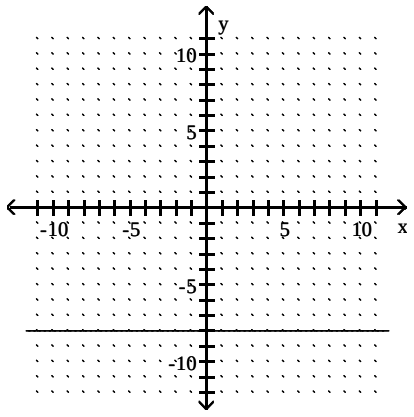
A) Function B) Not a function

11) 11) _____



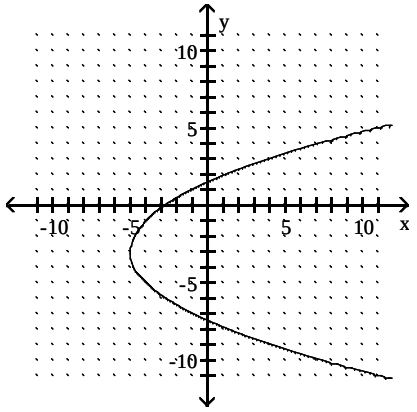
A) Function B) Not a function

12) 12) _____



A) Function B) Not a function

13) 13) _____



A) Function B) Not a function

14) $y = x^3$ 14) _____

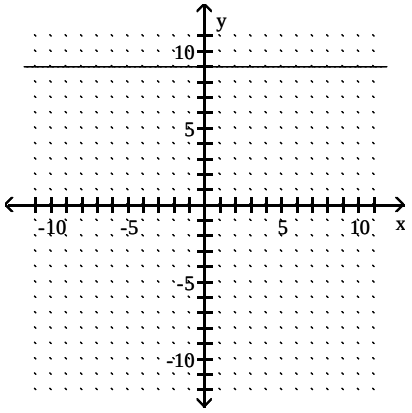
A) Function B) Not a function

15) $x = y^2$ 15) _____

A) Function B) Not a function

Give the domain and range of the relation.

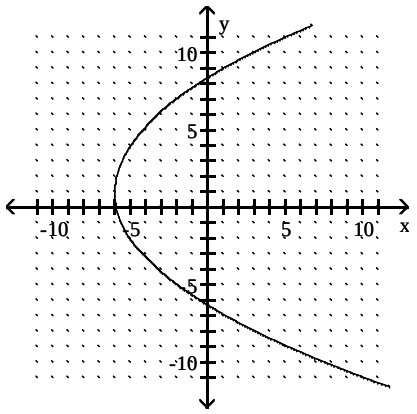
16) 16) _____



A) D = (−∞, ∞); R = (−∞, ∞) B) D = (−∞, ∞); R = {9}

C) D = (−∞, ∞); R = (−∞, 9) ∪ (9, ∞) D) D = {9}; R = (−∞, ∞)

17) 17) _____



A) D = (−∞, ∞); R = [−6, ∞)
B) D = (−6, ∞); R = (1, ∞)
C) D = [−6, ∞); R = (−∞, ∞)
D) D = (−∞, ∞); R = (−∞, ∞)

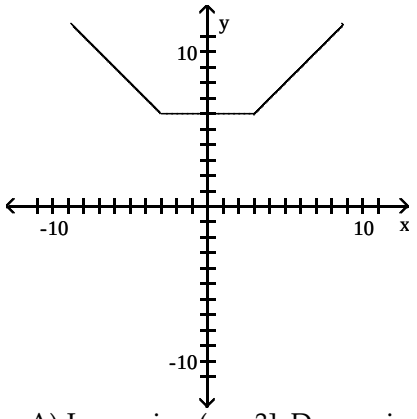
Solve the problem.

18) Find f(k − 1) when $f(x) = 3x^2 - 5x - 4$ 18) _____

A) $3k^2 - 11k - 6$ B) $3k^2 - 17k - 6$ C) $-11k^2 + 3k + 4$ D) $3k^2 - 11k + 4$

Determine the intervals over which the function is decreasing, increasing, and constant.

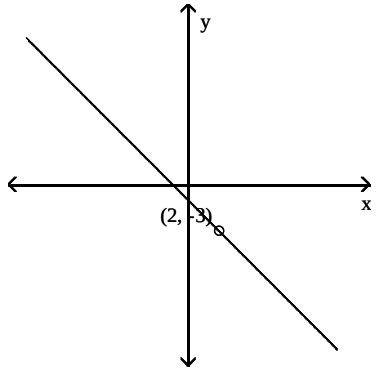
19) 19) _____



A) Increasing (−∞, 3]; Decreasing(−∞, −3]; Constant (−3, 3)
B) Increasing [3, ∞); Decreasing [−3, ∞); Constant (−3, 3)
C) Increasing [3, ∞); Decreasing (−∞, −3]; Constant [−3, 3]
D) Increasing (−∞, 3]; Decreasing [−3, ∞); Constant [−3, 3]

Determine the intervals of the domain over which each function is continuous.

20) 20) _____



A) $(-\infty, -3) \cup (-3, \infty)$ B) $(-\infty, 2] \cup [2, \infty)$

C) $(-\infty, \infty)$ D) $(-\infty, 2) \cup (2, \infty)$

Find the requested value.

21) 21) _____

$$f(9) \text{ for } f(x) = \begin{cases} 2x + 1, \text{ if } x < 1 \\ 9x, \text{ if } 9 \le x \le 14 \\ 9 - 3x, \text{ if } x > 14 \end{cases}$$

A) 81 B) 3 C) −18 D) 43

Compare the graph of the given quadratic function f with the graph of $y = x^2$.

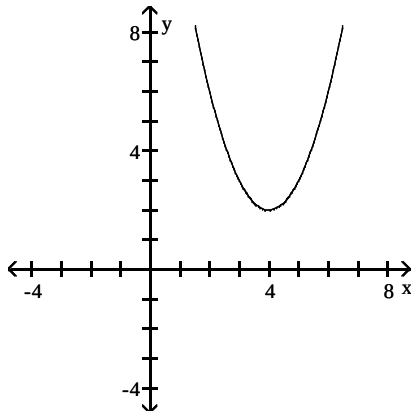
22) $f(x) = (x - 4)^2$ 22) _____

A) a translation 4 units left B) a translation 4 units up

C) a translation 4 units right D) a translation 4 units down

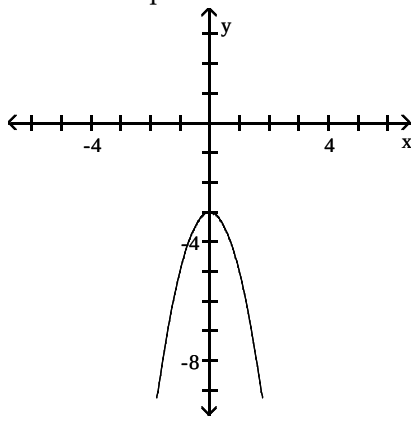
Solve the problem.

23) Select the equation that describes the graph shown. 23) _____



A) $y = (x + 4)^2 + 2$ B) $y = (x + 2)^2 - 4$ C) $y = x^2 - 4$ D) $y = (x - 4)^2 + 2$

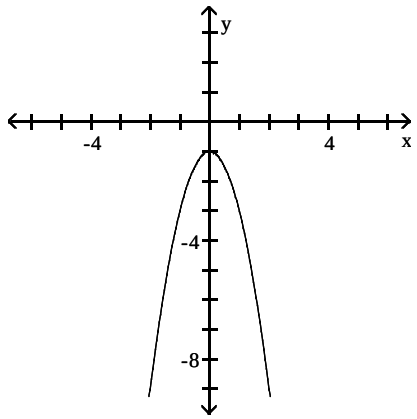
24) Select the equation that describes the graph shown. 24) _____



A) $y = -2(x - 3)^2$ B) $y = -2(x + 3)^2$

C) $y = -2(x - 3)^2 + 3$ D) $y = -2x^2 - 3$

25) Select the equation that describes the graph shown. 25) _____



A) $y = -2x^2 - 1$ B) $y = -2(x - 1)^2 + 1$

C) $y = -2(x + 1)^2$ D) $y = -2(x - 1)^2$

Determine whether the function is symmetric with respect to the y–axis, symmetric with respect to the x–axis, symmetric with respect to the origin, or none of these.

26) $f(x) = -8x^3 + 4x$ 26) _____

A) x–axis, y–axis, origin B) x–axis only

C) y–axis only D) origin only

27) $f(x) = 3x^2 + 2$ 27) _____

A) origin only B) x–axis only

C) y–axis only D) x–axis, y–axis, origin

Determine if the function is even, odd, or neither.

28) $f(x) = -5x^3 + 2x$ 28) _____

A) Even B) Odd C) Neither

29) $f(x) = 8x^4 + 7x + 5$ 29) _____

A) Odd B) Even C) Neither

Perform the requested operation or operations.

30) $f(x) = 2x - 9$, $g(x) = 4x - 4$ 30) _____

Find $(f - g)(x)$.

A) $2x + 5$ B) $-2x - 13$ C) $6x - 13$ D) $-2x - 5$

31) $f(x) = 5x + 15$, $g(x) = 3x - 1$ 31) _____

Find $(f \circ g)(x)$.

A) $15x + 44$ B) $15x + 10$ C) $15x + 14$ D) $15x + 20$

Find the equation of the axis of symmetry of the parabola.

32) $f(x) = (x - 1)^2 - 1$ 32) _____

A) $x = 1$ B) $y = 0$ C) $y = -1$ D) $x = -1$

33) $y = 3x^2 - 24x + 46$ 33) _____

A) $x = -2$ B) $x = 2$ C) $x = 4$ D) $x = -4$

Find the y–intercepts and any x–intercepts.

34) $y = (x + 1)^2 - 9$ 34) _____

A) y–intercept $(0, -8)$; x–intercept $(-1, 0)$

B) y–intercept $(0, -9)$; x–intercepts $(-4, 0)$ and $(2, 0)$

C) y–intercept $(0, -9)$; x–intercept $(-1, 0)$

D) y–intercept $(0, -8)$; x–intercepts $(-4, 0)$ and $(2, 0)$

Identify the vertex of the parabola.

35) $f(x) = (x + 4)^2 + 10$ 35) _____

A) $(0, -4)$ B) $(10, 0)$ C) $(-4, 10)$ D) $(10, -4)$

36) $f(x) = -3(x - 9)^2 - 1$ 36) _____

A) $(27, -1)$ B) $(9, -1)$ C) $(-9, -1)$ D) $(9, 1)$

37) $y = 2x^2 - 8x + 5$ 37) _____

A) $(2, -3)$ B) $(-3, 2)$ C) $(3, -2)$ D) $(-2, 3)$

Answer Key
Testname: FALL 2015 MATH 1314 REVIEW EXAM 2

1) C
2) A
3) B
4) C
5) C
6) C
7) C
8) A
9) B
10) A
11) B
12) A
13) B
14) A
15) B
16) B
17) C
18) D
19) C
20) D
21) A
22) C
23) D
24) D
25) A
26) D
27) C
28) B
29) C
30) D
31) B
32) A
33) C
34) D
35) C
36) B
37) A