FUNCTIONS Math 2 EOC Review (7)

1. Which of the following is always true for all functions?

   I. For every x there is only one y.

   II. For every y there is only one x.

   III. The domain is the set of real numbers.

   A. I only
   B. II only
   C. I and III only
   D. II and III only

2. Which of the following equations does *not* represent a function?

   A. $x^2 = 7 + y$
   B. $(x-2)^2 + (y+1)^2 = 4$
   C. $y = x + 6$
   D. $|x| + y = 0$

3. Which sentence best explains why a circle is *not* a function?

   A. You can draw a horizontal line through it.
   B. There are an infinite number of points on a circle.
   C. There are at least 2 points on the circle with the same x-coordinate.
   D. A circle is symmetric.

4. This equation represents what type of function?

   $y = |x - 4| + 2$

   A. quadratic
   B. exponential
   C. absolute value
   D. cubic

5. This equation represents what type of function?

   $y = \frac{1}{2}x^3 + 5x$

   A. linear
   B. exponential
   C. absolute value
   D. cubic

6. This equation represents what type of function?

   $y = 3x^2 - 5$

   A. linear
   B. quadratic
   C. absolute value
   D. cubic

7. This equation represents what type of function?

   $y = 4^{x+1}$

   A. linear
   B. quadratic
   C. exponential
   D. cubic

8. Express the following in function notation:

   $\{(x, y) |\ 3x + 4y = 8\}$

   A. $f(x) = -\frac{3}{4}x + 8$
   B. $f(x) = \frac{3}{4}x + 2$
   C. $f(x) = -\frac{3}{4}x + 2$
   D. $f(x) = -\frac{4}{3}x + 2$

9. Given the function $y = \frac{1}{2}x + 1$ and the domain $\{-1, 0, 1\}$, what is the range of the function?

   A. $\left\{-\frac{1}{2}, -1, -1\frac{1}{2}\right\}$
   B. $\left\{1\frac{1}{2}, 1, \frac{1}{2}\right\}$
   C. $\left\{\frac{1}{2}, 1, 1\frac{1}{2}\right\}$
   D. $\{0, 1, 2\}$

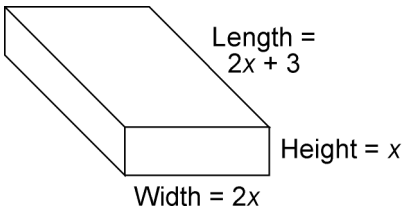
10. What is the range of the function

    $f(x) = 2x + 3$

    when the domain is $\{-3, -1, 1\}$?

    A. $\{0, 2, 4\}$
    B. $\{9, 5, 3\}$
    C. $\{-3, 1, 5\}$
    D. $\{3, 1, 5\}$

11. The dimensions of a rectangular container are shown in the figure.



If the volume of the container is $162\,\text{cm}^3$, which polynomial function models this problem?

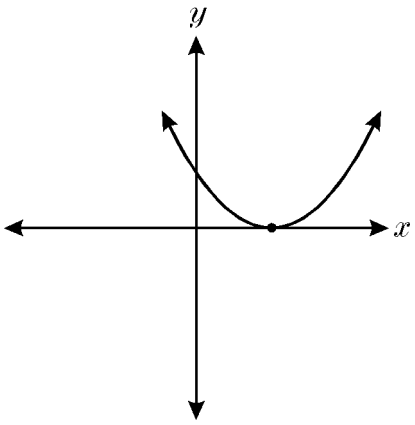
A. $f(x) = 4x^3 + 6x^2 - 162$

B. $f(x) = 4x^3 - 6x^2 + 162$

C. $f(x) = 6x^3 + 4x^2 + 162$

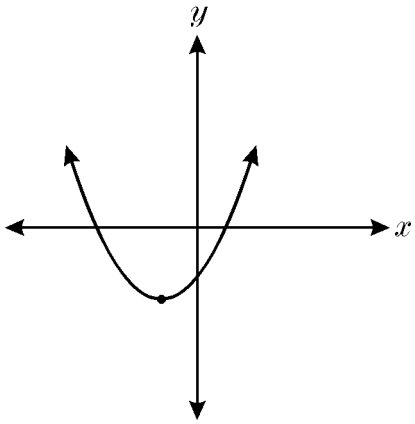
D. $f(x) = 6x^3 + 4x^2 - 162$

12. How many solutions are shown by the graph of the quadratic function?



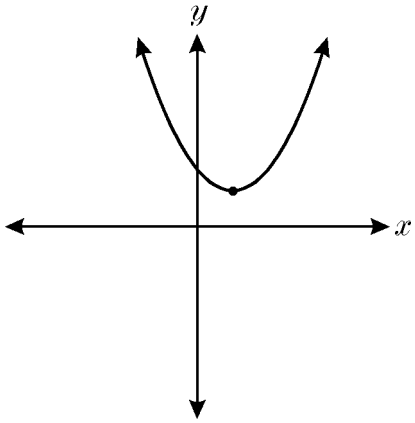
A. zero B. one C. two D. three

13. How many solutions are shown by the graph of the quadratic function?



A. zero B. one C. two D. three

14. How many solutions are shown by the graph of the quadratic function?



A. zero B. one C. two D. three

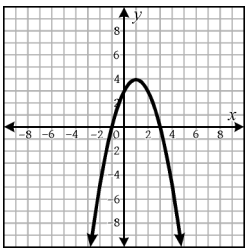
15. What are the roots of the function whose graph is shown?

A. $\{-1, 3\}$

B. $\{1, 4\}$

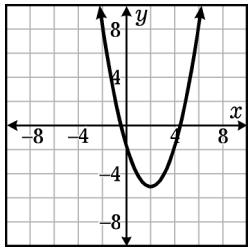
C. $\{3\}$

D. $\{-1\}$

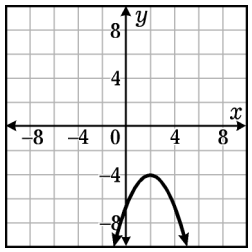


16. Which of the following is the graph of $f(x) = (x + 2)^2 - 5$?

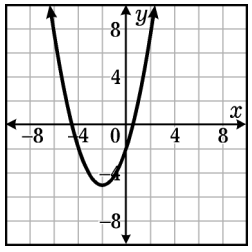
A.



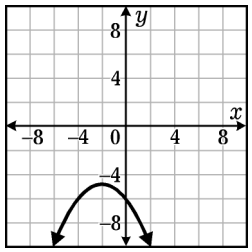
B.



C.

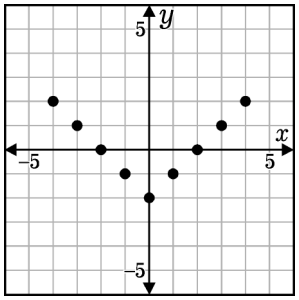


D.

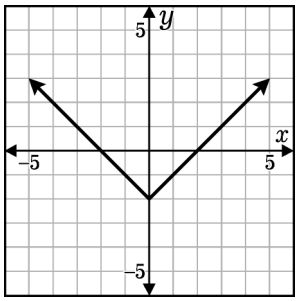


17. When x is a real number, which of the following is the graph of $y = -|x| + 2$?

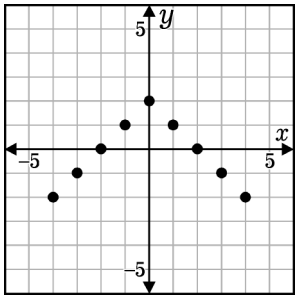
A.



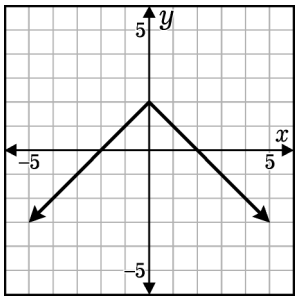
B.



C.

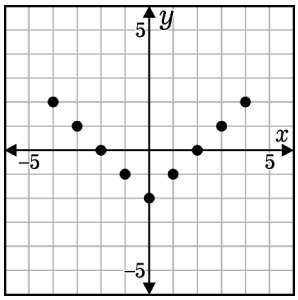


D.

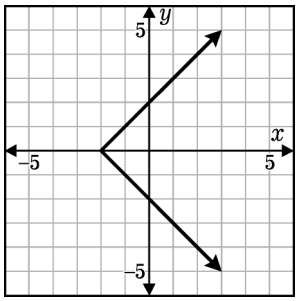


18. Which of the following is the graph of $y = |x| - 2$ when $x \in \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$?

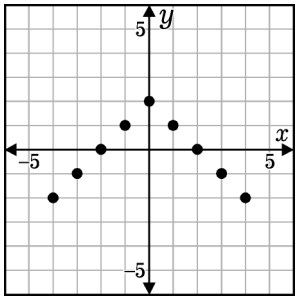
A.



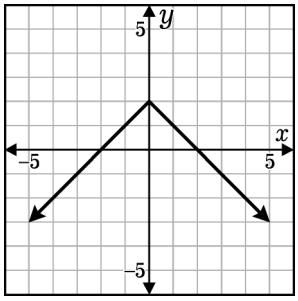
B.



C.

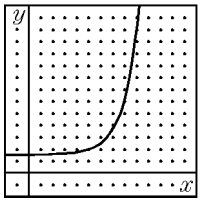


D.

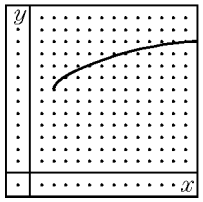


19. Which of the following is the graph of a cubic function?

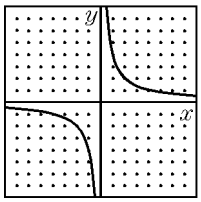
A.



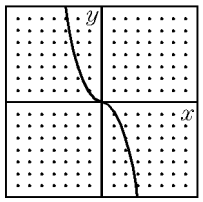
B.



C.

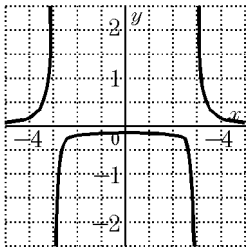


D.

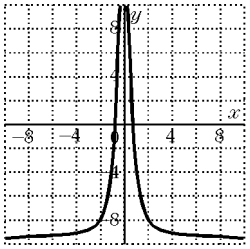


20. Which of the following represents the graph of $y = \dfrac{1}{x^2 - 9}$?

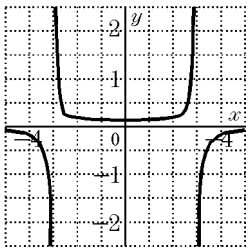
A.



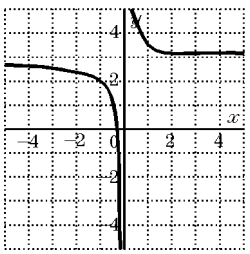
B.



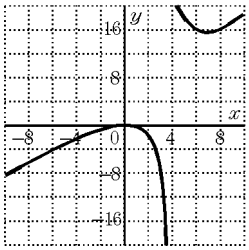
C.



D.



21. Which of the following is the equation of an asymptote for the function graphed?

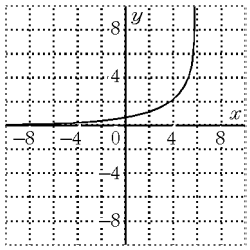


A. $x = -4$

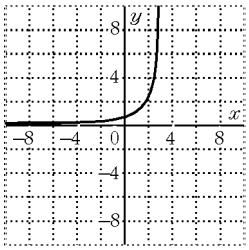
B. $x = 4$

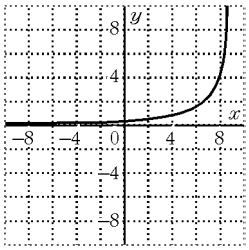
C. $y = 4$

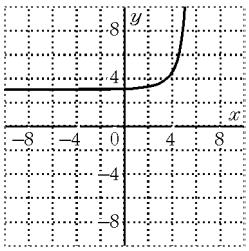
D. $y = 16$

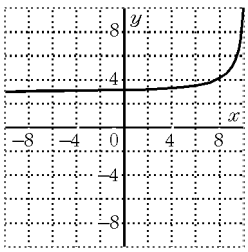
22. 

The graph of $y = 4^{x-4}$ is given. Which is the graph of $y = 4^{x-7}$?

A. 

B. 

C. 

D. 

23. Given $4^3 \times 2^{-1} = 2^x$, find x.

A. -9 B. 4 C. 5 D. 7

24. If $9^{3x} = 27^{x+9}$, then what is the value of x ?

A. $\frac{2}{3}$ B. $\frac{3}{2}$ C. 3 D. 9

25. If $4^{x-2} = 8^{x+1}$, then what is the value of x?

A. -7 B. -1 C. 1 D. 7

26. Which cubic equation represents the data shown in the table?

x	-4	-3	-2	-1	0	1	2	3
y	-30	0	12	12	6	0	0	12

A. $y = x^3 + 7x + 6$ B. $y = x^3 - 7x - 6$

C. $y = x^3 + 7x - 6$ D. $y = x^3 - 7x + 6$

27. If $f(x) = 3x^2$, then $f(x-3)$ is equivalent to:

A. $3x^2 - 9x + 9$ B. $3x^2 - 18x - 27$

C. $3x^2 - 18x + 27$ D. $3x^2 - 9x + 18$

28. If $f(x) = x^2 - 2x$, then $f(x+2) - f(2)$ is equivalent to:

A. $f(x+2)$ B. $f(x)$

C. $x^2 + 2x + 8$ D. $x^2 + 2x - 8$

29. Find $f(x) - g(x)$, given $f(x) = (2x-3)^2 + 5$ and $g(x) = x^3 + 2x^2 - 3x - 6$.

A. $-x^3 + 2x^2 - 9x + 12$

B. $-x^3 + 2x^2 - 9x + 20$

C. $-x^3 + 2x^2 - 6x + 14$

D. $-x^3 + 2x^2 + 6x + 8$

30. If $f(x) = 2x + 1$ and $g(x) = x^2 + 2x + 1$, find $f(g(x))$.

A. $x^2 + 2x + 3$ B. $2x^2 + 4x + 3$

C. $4x^2 + 2x + 2$ D. $4x^2 + 8x + 4$

31. If $f(x) = 2x + 1$ and $g(x) = x^2 + 2x + 1$, find $g(f(x))$.

A. $4x^2 + 8x + 4$ B. $-16x^2 + 8x + 4$

C. $16x^2 + 8x - 4$ D. $-4x^2 - 8x + 4$

32. If $f(x) = 2x$ and $g(x) = x - 4$, what is the value of $g(f(3))$?

A. -2 B. 0 C. 2 D. 6

33. Which function does *not* have $y = x$ as its parent function?

A. $y = 2x + 5$ B. $y = \frac{x}{2} - 1$

C. $y = 3x^2 - 1$ D. $y + 3 = x - 2$

34. Which will be the effect on the vertex of the parabola $y = 4x^2 + 1$, if the equation is changed to $y = -4x^2 + 1$?

A. The vertex is translated upward 8 units.

B. The vertex is translated downward 8 units.

C. The vertex is reflected across the x-axis.

D. The vertex does not change its position.

35. Which statement describes the effect on the vertex of the parabola $y = x^2 - 3$, if the equation is changed to $y = x^2 + 5$?

A. The vertex is translated upward 5 units.

B. The vertex is translated upward 8 units.

C. The vertex is reflected downward 2 units.

D. The vertex does not change its position.

36. Let $f(x) = \sqrt{x}$ and $g(x) = -\sqrt{x+2} - 3$. Describe $g(x)$ in terms of the parent function, $f(x)$.

$g(x)$ is $f(x)$:

A. reflected over the y-axis, translated right 2 and down 3

B. reflected over the x-axis, translated right 2 and down 3

C. reflected over the y-axis, translated left 2 and down 3

D. reflected over the x-axis, translated left 2 and down 3

37. Let $f(x) = \sqrt{x}$, $g(x) = 2\sqrt{x-4} + 6$. Describe $g(x)$ in terms of the parent function, $f(x)$.

$g(x)$ is $f(x)$:

A. vertical shrink, translated left 4 and up 6

B. vertical stretch, translated right 4 and up 6

C. horizontal stretch, translated right 6 and down 4

D. horizontal shrink, translated right 4 and up 6

FUNCTIONS Math 2 EOC Review (7) 5/11/2018

1.
Answer: A
Objective: F.IF.1

2.
Answer: B
Objective: F.IF.1

3.
Answer: C
Objective: F.IF.1

4.
Answer: C
Objective: F.IF.1

5.
Answer: D
Objective: F.IF.1

6.
Answer: B
Objective: F.IF.1

7.
Answer: C
Objective: F.IF.1

8.
Answer: C
Objective: F.IF.2

9.
Answer: C
Objective: F.IF.2

10.
Answer: C
Objective: F.IF.2

11.
Answer: A
Objective: F.IF.2

12.
Answer: B
Objective: F.IF.4

13.
Answer: C
Objective: F.IF.4

14.
Answer: A
Objective: F.IF.4

15.
Answer: A
Objective: F.IF.4

16.
Answer: C
Objective: F.IF.7A

17.
Answer: D
Objective: F.IF.7B

18.
Answer: A
Objective: F.IF.7B

19.
Answer: D
Objective: F.IF.7C

20.
Answer: A
Objective: F.IF.7D

21.
Answer: B
Objective: F.IF.7D

22.
Answer: B
Objective: F.IF.7E

23.
Answer: C
Objective: F.IF.8B

24.
Answer: D
Objective: F.IF.8B

25.
Answer: A
Objective: F.IF.8B

26.
Answer: D
Objective: F.BF.1A

27.
Answer: C
Objective: F.BF.1B

28.
Answer: A
Objective: F.BF.1B

29.
Answer: B
Objective: F.BF.1B

30.
Answer: B
Objective: F.BF.1C

31.
Answer: A
Objective: F.BF.1C

32.
Answer: C
Objective: F.BF.1C

33.
Answer: C
Objective: F.BF.3

34.
Answer: D
Objective: F.BF.3

35.
Answer: B
Objective: F.BF.3

36.
Answer: D
Objective: F.BF.3

37.
Answer: B
Objective: F.BF.3