1. Which graph best represents the solution for $y \geq |2x + 1| - 3$?

A

B

C

D

2. What is the solution to $|x + 4| < 2$?

A $x < -6$ or $x > -2$
B $-6 < x < -2$
C $x < -2$
D $2 < x < 6$
3. Which is a solution of $|2x - 7| + 1 = 9$?

A. $x = \frac{17}{2}$

B. $x = \frac{1}{2}$

C. $x = -\frac{1}{2}$

D. $x = -\frac{3}{2}$

4. Which of the following represent the solutions to $|4x + 9| > 11$?

A. $x < -5$ or $x > \frac{1}{2}$

B. $-\frac{1}{2} < x < 5$

C. $x < -\frac{1}{2}$ or $x > 5$

D. $-5 < x < \frac{1}{2}$

5. What are all the roots for the equation $3|w - 14| - 6 = 21$?

A. 9 and 19

B. 19

C. 5 and 23

D. 23

6. Which graph best represents the solution to the following inequality?

$$|x - 3| < 5$$

A

B

C

D
Which graph best represents the following equation?

\[ y = |x - 4| \]

A

B

C

D

What are all the roots for the equation \(|2u - 9| = 5|\)?

- A -2 and 7
- B 2 and -7
- C 2 and 7
- D -2 and -7

Which graph best represents the given inequality?

\[ y \geq |x + 1| \]

A

B

C

D
10. Which graph best represents the following equation?

\[ y = |2x| \]

A

B

C

D

11. Which of the following inequalities best represents the graph above?

A \[ |x - 1| < 3 \]
B \[ |x + 3| < 4 \]
C \[ |x + 3| < 7 \]
D \[ |x - 7| < 4 \]

12. Which graph best represents the following inequality?

\[ y < |x| + 1 \]

A

B

C

D
13 What is the solution to the following equation?
\[
\frac{3y + 4}{2} + \frac{2y - 5}{3} = \frac{31}{2}
\]
A $y = 7$
B $y = 13$
C $y = 1$
D $y = 6$

14 What is the solution set for the equation below?
\[
\frac{x - 2}{8} - \frac{x - 2}{x} = \frac{-1}{4}
\]
A $\{2, 8\}$
B $\{4\}$
C $\{6\}$
D $\left\{\frac{10}{3}\right\}$

15 What is the solution set for $\frac{5}{3} - \frac{2}{x} = \frac{8}{x}$ if $x \neq 0$?
A $\{2\}$
B $\left\{\frac{18}{5}\right\}$
C $\left\{\frac{26}{5}\right\}$
D $\{6\}$

16 What is the solution set for the following system of equations?
\[
\begin{align*}
    y &= x^2 - 2x + 1 \\
    y &= 3 - x
\end{align*}
\]
A $\{(-1, 4), (2, 1)\}$
B $\{(0, 3), (1, 2)\}$
C $\{(-2, -5), (-1, 4)\}$
D $\{(-2, 5), (1, 2)\}$
17 Given:

\[
\begin{align*}
  x + y + 10 &= 0 \\
  x^2 + y - 2 &= 0
\end{align*}
\]

What are the \(x\) -values for the solutions to the given system of equations?

A \(x = -3, -7\)  \\
B \(x = -3, 4\)  \\
C \(x = -4, 3\)  \\
D \(x = 4, -14\)

18 Which is the apparent solution set to the system of equations shown on the graph?

A \([(-1,9), (1,1)]\)  \\
B \([3,9, -1,9]\)  \\
C \([0,3, 0,5]\)  \\
D \([(-1,9)]\)
Which is the apparent solution set for the system of equations shown on the graph?
A \{(-4, 0), (-1.6, 3.6), (0, -4), (3.6, -1.6), (4, 0)\}
B \{(0, 2), (2, 0)\}
C \{(-1.6, 3.6), (3.6, -1.6)\}
D \{(-4, 0), (0, -4), (0, 4), (4, 0)\}

20 What is the solution set to the following system of equations?
\[
\begin{align*}
y &= 2x - 3 \\
y &= -x^2 + 5x + 1
\end{align*}
\]
A \{(1.5, 0)\}
B \{(1, 5), (4, 5)\}
C \{(-6, -15), (9, 15)\}
D \{(-1, -5), (4, 5)\}

21 What is the solution set for the following system of equations?
\[
\begin{align*}
x^2 + y^2 &= 5 \\
x + y &= 1
\end{align*}
\]
A \{(-2, 1), (2, 1)\}
B \{(-1, -2), (1, 2)\}
C \{(-1, 2), (2, -1)\}
D \{(1, -2), (1, 2)\}
22 \[\begin{align*}
y &= x^2 - 2x - 1 \\
y &= -x^2 + 4x - 1
\end{align*}\]

Which set of ordered pairs is the solution to the system of equations shown?
A \{ (0, -1), (6, 23) \}
B \{ (0, 3), (-1, 2) \}
C \{ (3, 2), (6, -11) \}
D \{ (0, -1), (3, 2) \}

23

Which is the apparent solution set to the system of equations shown on the graph?
A \{ (-3, 0), (-1, -4), (1, 0), (2, 5) \}
B \{ (-3, 0), (2, 5) \}
C \{ (-3, 0), (1, 0), (2, 5) \}
D \{ (-3, 1) \}
The graph of a system of two equations is shown on the grid. Identify only the apparent solutions to this system of equations.

- \((0, -3)\)
- \((1, 0)\)
- \((-3, 0)\)
- \((5, 0)\)
- \((0, 3)\)
- \((2, 5)\)
- \((-2, -3)\)

25 What is the solution to the equation?

\[
\frac{x + 4}{x} = \frac{3}{7}
\]

A \(x = -1\)
B \(x = \frac{14}{5}\)
C \(x = -7\)
D \(x = -4\)
26 What is the solution to the following equation?

\[
\frac{2}{5} + \frac{2}{x} = 1
\]

A \( x = \frac{5}{3} \)
B \( x = \frac{3}{10} \)
C \( x = \frac{3}{5} \)
D \( x = \frac{10}{3} \)

27 Which is a solution to \( \frac{4n - 37}{3} = \frac{10}{n} \), if \( n \neq 0 \) ?

A \( n = -10 \)
B \( n = -\frac{27}{4} \)
C \( n = -\frac{10}{11} \)
D \( n = -\frac{3}{4} \)

28 \[
\begin{align*}
y &= x^2 + 6x + 1 \\
y &= -2x - 14
\end{align*}
\]

What is the solution set for the given system of equations?

A \( \{(-7, 0), (0, 1)\} \)
B \( \{(-3, -8)\} \)
C \( \{(-3, -8), (-5, -4)\} \)
D \( \{(-5, -4), (0, 1)\} \)

29 Which is the solution set of \( \frac{1}{2}x - 5 = 3 \)?

A \( \{-1, 11\} \)
B \( \{16\} \)
C \( \{4, 16\} \)
D \( \{-16, 16\} \)
30. What is the solution set of $\sqrt{2x + 7} = 6$?

A $\left\{ \frac{43}{2} \right\}$

B $\left\{ \frac{29}{2} \right\}$

C $\left\{ \frac{5}{2} \right\}$

D $\left\{ \frac{19}{2} \right\}$

31. Which graph best represents the solutions to the inequality $|3x - 7| \leq 5$?

A

B

C

D

32. What is the solution set for $\sqrt[3]{\frac{1}{4}x + 3} = 2$?

A $\left\{ \frac{5}{4} \right\}$

B $\left\{ \frac{11}{4} \right\}$

C $\{20\}$

D $\{44\}$
33 What is the solution for the equation below?
\[ \sqrt{x - 6} + 5 = 8 \]
A \( x = 65 \)  
B \( x = 9 \)  
C \( x = 15 \)  
D \( x = 19 \)

34 Which value of \( x \) is a solution to the equation below?
\[ \frac{\sqrt{2x} + 2}{4} = 3 \]
A 12.5  
B 25  
C 70  
D 50

35 What is the solution set for the following equation?
\[ 3\sqrt{x} - 3 = 15 \]
A \( \{24\} \)  
B \( \left\{ \frac{34}{3} \right\} \)  
C \( \left\{ \frac{41}{3} \right\} \)  
D \( \{28\} \)

36 Directions: Type your answer in the box.
If \( x \neq 0 \), what is the solution to the following equation?
\[ \frac{1 - x}{x} + 2 = \frac{7}{x} \]
\[ x = \]
37 Which is a solution to the following equation?

$$\sqrt{x} + 4 = -2 - x$$

A $x = -2$
B $x = -4$
C $x = -3$
D $x = -1$

38 Which value of $x$ makes $2\sqrt{3x} + 7 = 19$ true?

A $-12$
B $-4$
C $2$
D $4$
E $12$
F $18$

39 If $s$ represents the length of one edge, the following formula may be used to determine the surface area of a cube.

$$S.A. = 6s^2$$

To the nearest tenth of a centimeter, what is the length of one edge of a cube with a surface area of 140 square centimeters?

A $23.4$ cm
B $12.3$ cm
C $7.6$ cm
D $4.8$ cm

40 When $x \neq 0$, what is the solution set for $\frac{x - 4}{4} = \frac{x - 3}{x}$?

A $\{2, 6\}$
B $\{3, 4\}$
C $\{6\}$
D $\{4\}$
41. What is the solution to
\[
\frac{3x^2 - 2}{x} = \frac{6x - 2}{x}?
\]
A. 0  
B. 6  
C. 2  
D. \(\sqrt{2}\)

42. If \(|-6x+11| = 4\), then —
A. \(x = \frac{-5}{2}\) or \(x = \frac{-7}{6}\)  
B. \(x = \frac{-2}{5}\) or \(x = \frac{5}{2}\)  
C. \(x = \frac{2}{7}\) or \(x = \frac{5}{6}\)  
D. \(x = \frac{2}{6}\) or \(x = \frac{5}{2}\)

43. Which is a solution for \(4\sqrt{w} - 4 + 11 = 14\) ?
A. \(w = 8\)  
B. \(w = 16\)  
C. \(w = 77\)  
D. \(w = 85\)

44. Which shows the solution to the following inequality?
\[
|x - 3| > 2
\]
A.  
B.  
C.  
D.  

[Diagram showing number lines with points marked for each option]
45 What is the solution set for the given equation?

\[ 3| x + 4 | = 18 \]

A \{ -2, 2 \}  
B \{ -22, -14 \}  
C \{ -19, 11 \}  
D \{ -10, 2 \}

46 Directions: Click on the correct answer.

What is the solution set to \( x^2 = 16 - 4x \) ?

A \{ \pm 4 \}  
B \{ 2 \pm 2\sqrt{5} \}  
C \{ 2 \pm 2i \sqrt{3} \}  
D \{ -2 \pm 2\sqrt{5} \}  
E \{ -2 \pm 2i \sqrt{3} \}

47 The graph of \( g(x) \) is shown.

Which appears to be a solution of \( g(x) = 0 \) ?

A \(-3\)  
B \(-1\)  
C \(0\)  
D \(3\)
48  A solution to a quadratic equation is $13 - 11i\sqrt{7}$. Which of the following must also be a solution to this equation?
A $-13 - 11i\sqrt{7}$  
B $-13 + 11i\sqrt{7}$  
C $13 - 11/\sqrt{7}$  
D $13 + 11i\sqrt{7}$

49  Which is the solution set for $2x^2 - 7x + 6 = 0$?
A $\{1.5, -2\}$  
B $\{-1.5, 2\}$  
C $\{1.5, 2\}$  
D $\{-1.5, -2\}$

50  The width of a rectangular window is 2 feet more than its height. If the area is 35 square feet, what is the height?
A 7 ft  
B 5 ft  
C 9 ft  
D 3 ft

51  What is the solution set to $2x^2 + 5x - 3 = 0$?
A $\{-\frac{3}{2}, -1\}$  
B $\{-\frac{1}{2}, 3\}$  
C $\{-3, \frac{1}{2}\}$  
D $\{\frac{3}{2}, 1\}$

52  What is the solution set of the equation $x^2 - 2x + 5 = 0$?
A $\{-3, 1\}$  
B $\{1 - 2i, 1 + 2i\}$  
C $\{-1, -2i, -1 + 2i\}$  
D $\{-1, 3\}$
53  What is the solution set for the following equation?

\[ 6 = x^2 - x \]

A \[ -2, 3 \]  
B \[ -3, 2 \]  
C \[ \frac{1 \pm i\sqrt{23}}{2} \]  
D \[ \frac{-1 \pm i\sqrt{23}}{2} \]

54  What is the apparent solution set for the equation associated with the following graph?

A \{ -3, 3 \}  
B \{ -9, 0 \}  
C \{ -3 \}  
D \{ 3 \}

55  Which is the solution set for \((x + 5)^2 = 0\) ?

A \{ -5 \}  
B \{ 25 \}  
C \{ 5 \}  
D \{ -5, 5 \}
What is the solution to the following equation?

\[(x - 3)^2 = 14\]

A \(x = -5\) or \(x = -1\)
B \(x = -3 \pm \sqrt{14}\)
C \(x = 3 \pm \sqrt{14}\)
D \(x = 1\) or \(x = 5\)

What is the solution set for \(\sqrt{k} + 64 - 8 = -2\)?

A \(\{\}\)
B \(\{-124\}\)
C \(\{4\}\)
D \(\{-28\}\)

What is the solution to \(3\sqrt{x} - 4 = -5\)?

A \(x = -1\)
B \(x = 129\)
C \(x = 29\)
D \(x = -121\)
Apparently, the system of equations graphed above has —

A  exactly 1 solution  
B  no solutions  
C  exactly 2 solutions  
D  exactly 3 solutions