

1. What are the solutions of the quadratic equation $2x^2 - 6x - 20 = 0$? [NO CALC]

A) $x = -2$ and $x = -5$

B) $x = -2$ and $x = 5$

C) $x = 2$ and $x = -5$

D) $x = 2$ and $x = 5$

2. What are the solutions of the quadratic equation $3x^2 - 6x - 24 = 0$? [NO CALC]

A) $x = -2$ and $x = -4$

B) $x = -2$ and $x = 4$

C) $x = 2$ and $x = -4$

D) $x = 2$ and $x = 4$

3. What are the solutions of the quadratic equation $4x^2 + 4x - 24 = 0$? [NO CALC]

A) $x = -2$ and $x = -3$

B) $x = -2$ and $x = 3$

C) $x = 2$ and $x = -3$

D) $x = 2$ and $x = 3$

$$\frac{3x + 6}{(x - 1)^2} - \frac{3}{x - 1}$$

4. The expression above is equivalent to $\frac{a}{(x-1)^2}$, where a is a positive constant and $x \neq 1$. What is the value of a ? [NO CALC]

$$\frac{2x + 7}{(x + 3)^2} - \frac{2}{x + 3}$$

5. The expression above is equivalent to $\frac{a}{(x+3)^2}$, where a is a positive constant and $x \neq -3$. What is the value of a ? [NO CALC]

$$\frac{4x + 14}{(x + 3)^2} - \frac{4}{x + 3}$$

6. The expression above is equivalent to $\frac{a}{(x+3)^2}$, where a is a positive constant and $x \neq -3$. What is the value of a ? [NO CALC]

$$y = x^2$$

$$2y + 4 = -4(x - 5)$$

7. How many solutions are there to the system of equations above? [NO CALC]
- A) There are exactly 4 solutions.
 - B) There are exactly 2 solutions.
 - C) There is exactly 1 solution.
 - D) There are no solutions.

$$y = x^2 - 10x + 21$$

$$y = x - 7$$

8. How many solutions are there to the system of equations above? [NO CALC]
- A) There are exactly 4 solutions.
 - B) There are exactly 2 solutions.
 - C) There is exactly 1 solution.
 - D) There are no solutions.

$$y = x^2$$

$$2y + 4 = 2(x + 2)$$

9. How many solutions are there to the system of equations above? [NO CALC]
- A) There are exactly 4 solutions.
 - B) There are exactly 2 solutions.
 - C) There is exactly 1 solution.
 - D) There are no solutions.

$$y = x^2 - 8x + 12$$

$$y = x - 6$$

10. How many solutions are there to the system of equations above? [NO CALC]
- A) There are exactly 4 solutions.
 - B) There are exactly 2 solutions.
 - C) There is exactly 1 solution.
 - D) There are no solutions.

$$\frac{1}{x-4} = -\frac{1}{x-5}$$

11. What value of x satisfies the equation above?

$$-\frac{1}{x-3} = \frac{1}{x-4}$$

12. What value of x satisfies the equation above?

$$\frac{1}{x-2} = -\frac{1}{x-6}$$

13. What value of x satisfies the equation above?

14. A line is graphed in the xy -plane. If the line has a negative slope and a positive y -intercept, which of the following points cannot lie on the line?

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

15. A line is graphed in the xy -plane. If the line has a negative slope and a negative y -intercept, which of the following points cannot lie on the line?

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

16. A line is graphed in the xy -plane. If the line has a positive slope and a positive y -intercept, which of the following points cannot lie on the line?

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

17. If $r > 0$ and $\sqrt[3]{\frac{25r}{2}} = \frac{1}{2}r$, what is the value of r ?

18. If $r > 0$ and $\sqrt[3]{\frac{4r}{3}} = \frac{1}{3}r$, what is the value of r ?

19. If $r > 0$ and $\sqrt[3]{\frac{5r}{2}} = \frac{1}{2}r$, what is the value of r^2 ?

20. The line $y = kx + 3$, where k is a constant, is graphed in the xy -plane. If the line contains the point (c, d) , where $c \neq 0$ and $d \neq 0$, what is the slope of the line in terms of c and d ?

A) $\frac{3-c}{d}$

B) $\frac{3-d}{c}$

C) $\frac{c-3}{d}$

D) $\frac{d-3}{c}$

21. The line $y = kx - 5$, where k is a constant, is graphed in the xy -plane. If the line contains the point (c, d) , where $c \neq 0$ and $d \neq 0$, what is the slope of the line in terms of c and d ?

A) $\frac{5+c}{d}$

B) $\frac{5+d}{c}$

C) $\frac{c-5}{d}$

D) $\frac{d-5}{c}$

22. The line $y = kx + 2$, where k is a constant, is graphed in the xy -plane. If the line contains the point (a, b) , where $a \neq 0$ and $b \neq 0$, what is the slope of the line in terms of a and b ?

A) $\frac{a-2}{b}$

B) $\frac{b-2}{a}$

C) $\frac{2-a}{b}$

D) $\frac{2-b}{a}$

$$kx - 5y = 3$$

$$3x - 2y = 8$$

23. In the system of equations above, k is a constant and x and y are variables. For what value of k will the system of equations have no solution?

A) $\frac{15}{2}$

B) $\frac{2}{15}$

C) $-\frac{2}{15}$

D) $-\frac{15}{2}$

$$kx + 4y = 5$$

$$5x - 2y = 8$$

24. In the system of equations above, k is a constant and x and y are variables. For what value of k will the system of equations have no solution?

A) 10

B) $\frac{1}{10}$

C) $-\frac{1}{10}$

D) -10

$$kx + 3y = 7$$

$$4x - 5y = 8$$

25. In the system of equations above, k is a constant and x and y are variables. For what value of k will the system of equations have no solution?

A) $-\frac{12}{5}$

B) $-\frac{5}{12}$

C) $\frac{5}{12}$

D) $\frac{12}{5}$

Answers:

1. B
2. B
3. C
4. 9
5. 1
6. 2
7. C
8. B
9. C
10. B
11. $\frac{9}{2}$
12. $\frac{7}{2}$
13. 4
14. D
15. C
16. A
17. 10
18. 6
19. 20
20. D
21. D
22. B
23. A
24. D
25. A