

1. Which equation has only one solution?

A. $6r = 5r + r$

B. $4m + 5 = 25$

C. $8v + 11 = 8v + 11$

D. $2 - 3p = -3p + 5$

2. Four students each wrote an equation.

Student Equations

| Student | Equation |
|---------|-------------------|
| Beto | $3m = 3m + 5$ |
| Lila | $9r + 4 = 4 + 9r$ |
| Mark | $6 - n = -n + 2$ |
| Wanda | $8u - 2 = 2u + 8$ |

Which two students wrote equations that have no solution?

A. Beto and Wanda

B. Beto and Mark

C. Lila and Wanda

D. Lila and Mark

3. Which equation has an infinite number of solutions?

A. $12 = 3y$

B. $8g + 5 = 21$

C. $2x + 7 - 2x = 7$

D. $4p - 4 = 4p + 4$

4. Which equation has no solution?

A. $3k - 20 = 12$

B. $8 + 15g = 15 + 8g$

C. $12x + 6 = 3(4x + 2)$

D. $9p + 7 = 6p - 2 + 3p$

5. Which of the following equations has no solution?

A. $7x - 3x - 4 = 4$

B. $7x - 3x + 4 = 4$

C. $3(2x - 4) = 6(x - 2)$

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

6. An equation is given below.

$$6 - 2(4 - x) + 3x = 5x - 2$$

Based on the equation, which of the following is a valid statement?

- A. The only value that satisfies the equation is $x = 0$.
- B. The only value that satisfies the equation is $x = 3$.
- C. There are no values of x that satisfy the equation.
- D. Any real number value of x satisfies the equation.

7. Which statement regarding the number of solutions for the linear equation shown below is true?

$$4(3x + 8) - 9 = 2(6x - 8) + 39$$

- A. There are infinitely many solutions.
- B. There are exactly two solutions.
- C. There is exactly one solution.
- D. There is no solution.

8. Which statement regarding the number of solutions for the linear equation shown below is true?

$$\frac{1}{4}x - 13 = \frac{1}{4}(x + 13)$$

- A. There is no solution.
- B. There is exactly one solution.
- C. There are exactly two solutions.
- D. There are infinitely many solutions.

9. A student concluded that $8x - 12 = 4\left(\frac{1}{2}x - 6\right)$ has infinitely many solutions. Which statement BEST describes the student's conclusion?

- A. The conclusion is incorrect because the equation has no solution.
- B. The conclusion is incorrect because there is exactly one solution to the equation.
- C. The conclusion is correct because there are exactly two solutions to the equation.
- D. The conclusion is correct because when simplified, both sides of the equation are equivalent.

10. A linear equation is shown below.

$$10w + 19 + 3w = 6(9 + w) - 14$$

Which statement is true?

- A. The equation has no solution.

- B. The solution to the equation is 3.
- C. The solutions to the equation are 3 and 7.
- D. The equation has infinitely many solutions.

11. Which statement about x in the equation $a - x = 2a$ is true?

- A. x is equal to twice a
- B. x must be greater than a
- C. x must be equal to the opposite of a
- D. x does not have any real number values

12. What is the value of y in the equation below?

$$4y + 8 = 6y + 2$$

- A. $\frac{3}{5}$
- B. 1
- C. 3
- D. 5

13. What is the value of n in the equation below?

$$9n - 24 = 4n + 6$$

A. -6

B. -3

C. 5

D. 6

14. What is the solution to the equation $37x = 9x + 4$?

A. -7

B. $-\frac{1}{7}$

C. $\frac{1}{7}$

D. 7

15. Martina is solving the equation $4x - 11 = 2x + 391$. Here are the first steps of her solution.

$$4x - 11 = 2x + 391$$

$$4x = 2x + 402$$

$$2x = 402$$

What did Martina do to get $2x = 402$?

- A.** divided both sides by 2
- B.** divided the left side by $2x$
- C.** subtracted $2x$ from both sides
- D.** subtracted $2x$ from the left side and added $2x$ to the right side

16. A student solved an equation for the unknown value of n as $0 = 0$. Which set represents all of the possible values of n ?

- A.** only zero can be the solution
- B.** only positive numbers can be the solution
- C.** only negative numbers can be the solution
- D.** any number can be the solution

17. How many solutions does the equation $4r + 8 = 8 + 4r$ have?

- A.** no solutions
- B.** one unique solution
- C.** two unique solutions

D. infinitely many solutions

18. Which equation has no solution?

A. $4x - 9 = -9$

B. $3x + 2 = 17$

C. $2x + 4 = 2x + 6$

D. $x + 3x = 8x - 4x$

19. Solve the equation $2(3x - 4) = 8x - 4 - 2x$.

A. no solution

B. infinitely many solutions

C. $x = -1$

D. $x = 4$

20. Which statement correctly describes the solution(s) of the equation below?

$$-2 + x - 3 = 2x + 5 - x$$

A. The equation has one solution, which is -5 .

B. The equation has one solution, which is 5 .

C. The equation has infinitely many solutions.

D. The equation has no solution.

21. How many solutions does the equation $3x - 2x + 4 = 2 + x + 2$ have?

A. no solution

B. one solution

C. two solutions

D. infinitely many solutions

22. How many solutions does the equation $5(x - 2) = 8 + 5x$ have?

A. no solution

B. one solution

C. two solutions

D. infinitely many solutions

23. How many solutions does the equation $2(x + 4) = 2x + 8$ have?

A. no solutions

B. one solution

C. two solutions

D. infinite solutions

24. Which equation has no solution?

A. $-5 + 8x - 9 = 3(x + 3)$

B. $-2(6 - 3x) = -12 + 6x$

C. $6 - 2(3 - 2x) = -4(3 - x)$

D. $-(4x + 9) = 2x - 3(2x + 3)$

25. Which equation has infinitely many solutions?

A. $8x = 8(x - 1) + 1$

B. $2x - 5 = 2(x - 5)$

C. $22 - 6x = 2(3x - 11)$

D. $3(5x - 4) - 8x = 7x - 12$

26. Which of these equations does NOT have any solutions?

A. $10 - 3x - 1 = 7 + 3x + 2$

B. $12 - 7x - 10 = x - 8x + 2$

C. $13 - 4x + 2 = 3x - 7x + 2$

D. $15 - 2x - 2 = 10x + 3x + 2$

27. Which equation has an infinite number of solutions?

A. $7(1 - 4x) + 3x = 7$

B. $5(2 - 4x) + 4x = 10$

C. $8(2 - 2x) + 16x = 9$

D. $6(3 - 2x) + 12x = 18$

28. The equation $-2x + 3 = 6 - 2x$ has no solution. Which step would change the given equation so that it has infinitely many solutions?

A. adding 3 to the left side of the equation

B. adding 6 to the left side of the equation

C. subtracting 3 from the left side of the equation

D. subtracting 6 from the left side of the equation