

1. Find all solutions of the equation. $|2x - 3| = 11$

- (a) 4, 7
- (b) 4
- (c) -4, 7
- (d) -7, 7

2. Simplify the expression $\frac{3ax - 6ay - bx + 2by}{3a - b}$

- (a) $2x - 4y$
- (b) $x - 2y$
- (c) $ax - 6y - x + by$
- (d) $-6ay + 2by$

3. Solve the equation. $x + 1 = 9x^3 + 9x^2$

- (a) -3, -1, 3
- (b) -1, $-\frac{1}{3}$, $\frac{1}{3}$
- (c) 0
- (d) -1, 0, 1

4. Solve the following equation. $x^3 = 4x$

- (a) -2, 0, 2
- (b) -2, 2
- (c) 2
- (d) 0, 4

5. Solve the following equation. $2x^2 + 5x = 3$

- (a) -3, $\frac{1}{2}$
- (b) -3
- (c) -3, 2
- (d) $-\frac{3}{2}$, -1

6. Simplify the expression $\left(\frac{2}{3} - 3\frac{1}{5}\left(-\frac{7}{8}\right)\right) \div \left(2\frac{3}{5}\right) - \frac{1}{3} =$

(a) $-\frac{15}{13}$

(b) $\frac{27}{52}$

(c) $\frac{2}{3}$

(d) 1

7. Which of the following is a solution of $5x - y = 8$?

(a) $x = 3$ and $y = -7$

(b) $x = 2$ and $y = -2$

(c) $x = 1$ and $y = -3$

(d) $x = -1$ and $y = 13$

8. Perform the operation: $(5x - 2)^2 =$

(a) $25x^2 - 20x + 4$

(b) $25x^2 - 4$

(c) $20x^2 - 50x + 4$

(d) $25x^2 + 20x + 4$

9. Simplify: $(25m^2 - 9)\left(\frac{5m + 3}{5m - 3}\right)$

(a) $(5m + 3)^2$

(b) 1

(c) $5m - 3$

(d) $5(5m + 3)$

10. Solve:

$$\begin{aligned}5x + y &= 25 \\x &= y - 7\end{aligned}$$

(a) $x = 2$ and $y = 15$

(b) $x = 3$ and $y = 10$

(c) $x = 5$ and $y = 12$

(d) $x = 10$ and $y = -25$

11. Evaluate the expression $\frac{|x-6|}{6-x}$ when $x = -3$.

- (a) 3
- (b) -1
- (c) -3
- (d) 1

12. Multiply and simplify by combining like terms: $(a+5)(a^2-5a+25) =$

- (a) $a^3 - 25a^2 - 25a + 125$
- (b) $a^3 + 125$
- (c) $a^3 - 5a^2 - 25a + 125$
- (d) $a^3 - 125$

13. Evaluate the following expression: $4(3-7) \div 2 + 8 =$

- (a) -1.6
- (b) 0
- (c) 10.5
- (d) undefined

14. Factor completely $x^2 - 4x - 12$.

- (a) $(x+6)(x-2)$
- (b) $(x-8)(x+4)$
- (c) $(x-2)(x-6)$
- (d) $(x-6)(x+2)$

15. Find the indicated product and simplify by combining like terms: $(7m+3n)(7m-3n)$

- (a) $49m^2 - 21mn - 9n^2$
- (b) $49m^2 - 9n^2$
- (c) $49m^2 - 42mn - 9n^2$
- (d) $7m^2 - 3n^2$

16. When $t = -5\frac{1}{2}$, then the expression $-8t - t^2 + \frac{1}{4}$ has value

- (a) -74
- (b) $\frac{149}{2}$
- (c) 74
- (d) 14

17. Solve the following system of equations:

$$\begin{aligned}2x + 3y &= 11 \\ x - 4y &= 0\end{aligned}$$

- (a) $(x, y) = (4, 1)$
- (b) $(x, y) = (10, -3)$
- (c) $(x, y) = (1, 3)$
- (d) $(x, y) = (-1, 4)$

18. Solve: $-6(t + 3) + 2(5 - t) = -9$

- (a) $\frac{11}{8}$
- (b) $\frac{17}{8}$
- (c) $\frac{22}{7}$
- (d) $\frac{1}{8}$

19. Multiply: $(-8x^2y)(-3xy^4)$

- (a) $24x^3y^5$
- (b) $-11x^2y^5$
- (c) $-24x^2y^4$
- (d) $11x^3y^3$

20. Subtract: $(4a^4 - 5a^2 + 2a + 5) - (3a^3 - 3a^2 + 2a - 3)$.

- (a) $a^4 - 8a^2 + 4a + 2$
- (b) $4a^4 - 2a^2 + 4a + 8$
- (c) $4a^4 - 3a^3 - 2a^2 + 8$
- (d) $a^4 - 2a^2 + 8$