

BASIC ALGEBRA**Practice Exam****Form 1****Name**

Directions: Choose the one best answer for each item.

1. Simplify: $8 - 4 \div 2 - 10 \div 2$

- a) 4 b) 1 c) -3 d) -4

2. Simplify: $12 - (-3)^2 \div (7 - 4)$

- a) 1 b) 7 c) 9 d) 15

3. $|-8| - |-5| =$

- a) -13 b) -3 c) 3 d) 13

4. Simplify: $-2[x + 9(x + 1)]$

- a)
- $20x + 18$
- b)
- $20x + 2$
- c)
- $-20x - 2$
- d)
- $-20x - 18$

5. Evaluate the given expression when $a = -3$, $b = 2$, and $c = -1$.

$$2ab - c$$

- a) 13 b) 11 c) -11 d) -13

6. Solve for x : $2(3x + 5) = 5x - 11$

- a)
- $x = -21$
- b)
- $x = -16$
- c)
- $x = -\frac{21}{11}$
- d)
- $x = -1$

7. Solve for x : $\frac{1}{2}x + 6 = 3 + 2x$
- a) $x = 3$ b) $x = 2$ c) $x = 0$ d) $x = -3$
8. Solve for y : $3x + 4y = 12$
- a) $y = 12 - 3x$ b) $y = \frac{3x - 12}{4}$ c) $y = 3 - 3x$ d) $y = \frac{12 - 3x}{4}$
9. Solve: $2x + 1 < 3x + 4$
- a) $x < 3$ b) $x > 3$ c) $x < -3$ d) $x > -3$
10. The sum of a number and 6 is 8 more than twice the number. Find the equation that could be used to find this number, x .
- a) $x + 6 = 2x + 8$ b) $x + 6 = x^2 + 8$ c) $x + 6 = 2(x + 8)$ d) $6x = 2x + 8$
11. The length of a rectangle is 2 feet more than the width. The perimeter of the rectangle is 20 feet. Find the length.
- a) 4 feet b) 6 feet c) 9 feet d) 11 feet
12. Identify the proportion listed below that solves this problem.
- A car can travel 189 miles on 9 gallons of gasoline. How far can the car travel on 13 gallons?
- a) $\frac{9}{189} = \frac{x}{13}$ b) $\frac{189}{9} = \frac{x}{13}$ c) $\frac{189}{13} = \frac{x}{9}$ d) $\frac{189}{x} = \frac{13}{9}$

13. Simplify: $\frac{5x^2y}{x^3}$
- a) $5x^5y$ b) $\frac{5y}{x}$ c) $5xy$ d) $\frac{5x}{y}$
14. Simplify: $\frac{x^{-3}y^6}{x^{-4}y^4}$
- a) xy^2 b) $\frac{y^2}{x}$ c) $\frac{y^2}{x^7}$ d) x^7y^2
15. Simplify: $\frac{a^{-2}b^{-1}c^2}{a^3b^0c}$
- a) $\frac{c}{a^5b}$ b) $\frac{c}{a^5}$ c) $\frac{a^5c}{b}$ d) $\frac{bc}{a^5}$
16. Convert to standard form: 7.96×10^{-2}
- a) 0.00796 b) 0.0796 c) 796 d) 7,960
17. Convert to scientific notation: 650,000
- a) 65×10^4 b) 6.5×10^5 c) 6.5×10^{-5} d) 0.65×10^6
18. Simplify: $(3x^2 - 4x + 8) + (2x^2 + 5x - 12)$
- a) $5x^2 + x - 4$ b) $5x^4 - x^2 - 4$ c) $6x^4 + x^2 + 4$ d) $6x^2 - 20x + 96$

19. Simplify: $(x^2 + 2x - 5) - (4x^2 - 3x - 1)$
- a) $-3x^4 + 5x^2 - 4$ b) $-3x^2 + 5x - 4$ c) $-3x^2 + 5x - 6$ d) $-3x^2 - x - 6$
20. Simplify: $4x^3(2x^2 - 7)$
- a) $8x^5 - 28x^3$ b) $8x^6 - 7$ c) $6x^5 - 28x^3$ d) $8x^6 - 28x^3$
21. Simplify: $(2x + 5)(x + 9)$
- a) $3x^2 + 23x + 14$ b) $3x^2 + 23x + 45$ c) $2x^2 + 14x + 45$ d) $2x^2 + 23x + 45$
22. Simplify: $(2x - 7)(2x + 7)$
- a) $4x^2 - 49$ b) $2x^2 - 49$ c) $4x^2 + 49$ d) $4x^2 + 28x - 49$
23. Factor completely: $4x^4 - 8x^3 - 4x^2 + 16x$
- a) $4x(x^3 - 2x^2 - x + 4)$ b) $4x(x^4 - 2x^3 - x^2 + 4x)$
c) $4x(x^3 - 2x^2 + x - 4)$ d) $4x(x^4 - 2x^3 - x^2 + 4)$
24. Factor completely: $4x^2 - 9$
- a) $(2x^2 + 3)(2x^2 - 3)$ b) $(2x + 3)(2x - 3)$ c) $(2x + 1)(2x - 9)$ d) $(2x - 3)(2x - 3)$
25. Factor completely: $x^2 - 4x + 2xy - 8y$
- a) $(x + 4)(x + 2y)$ b) $(x + 4)(x - 2y)$ c) $(x - 4)(x + 2y)$ d) $(x - 4)(x - 2y)$
26. Identify a factor of the following trinomial: $x^2 - 9x + 20$
- a) $(x + 5)$ b) $(x + 4)$ c) $(x - 5)$ d) $(x - 10)$

27. Identify a factor of the following trinomial: $5x^2 - 9x - 2$

- a) $(5x+2)$ b) $(5x+1)$ c) $(x+2)$ d) $(x+1)$

28. Simplify: $\frac{x^2 - 4x + 3}{1 - x}$

- a) $-x+3$ b) $-x+1$ c) $x-3$ d) $x+3$

29. Solve: $x^2 - 5x + 6 = 0$

- a) $x = 2, x = 3$ b) $x = -2, x = -3$ c) $x = 1, x = 6$ d) $x = -1, x = 6$

30. Solve: $3a^2 + 14a + 8 = 0$

- a) $a = -\frac{2}{3}, a = -4$ b) $a = \frac{2}{3}, a = 4$ c) $a = -\frac{3}{2}, a = -4$ d) $a = -\frac{4}{3}, a = -2$

31. Assuming the variable represents a non-negative number, simplify completely: $\sqrt{18x^3}$

- a) $3x\sqrt{2x}$ b) $6x\sqrt{3x^2}$ c) $9x\sqrt{2x}$ d) $3\sqrt{6x^3}$

32. Simplify: $\sqrt{50} + \sqrt{18}$

- a) 30 b) $8\sqrt{2}$ c) $15\sqrt{2}$ d) 16

33. Simplify: $\sqrt{3}(\sqrt{3} + \sqrt{6})$

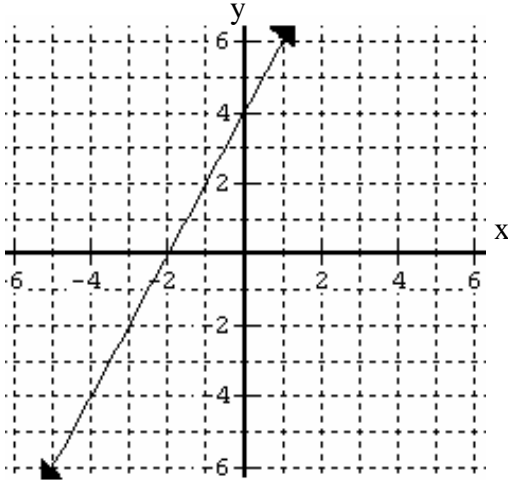
- a) $6\sqrt{2}$ b) 9 c) $3+3\sqrt{2}$ d) 21

34. Find the y-intercept for: $x + 3y = 7$

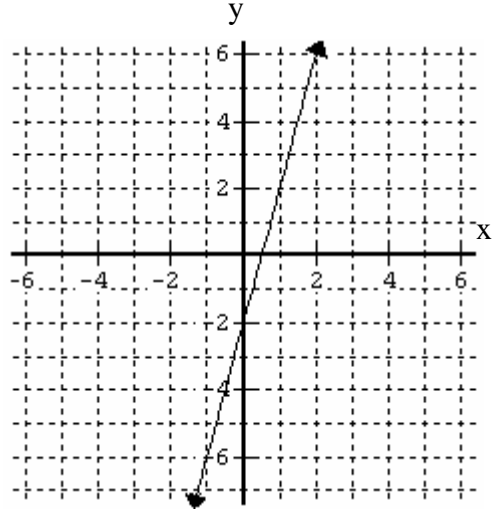
- a) $\left(0, \frac{7}{3}\right)$ b) $(0, 7)$ c) $\left(7, \frac{7}{3}\right)$ d) $(7, 0)$

35. Find the graph that best matches the given linear equation: $2x + y = 4$

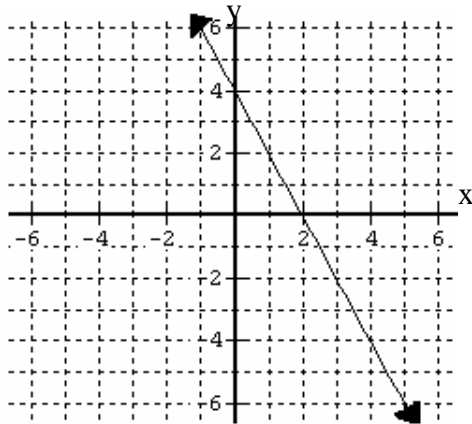
a)



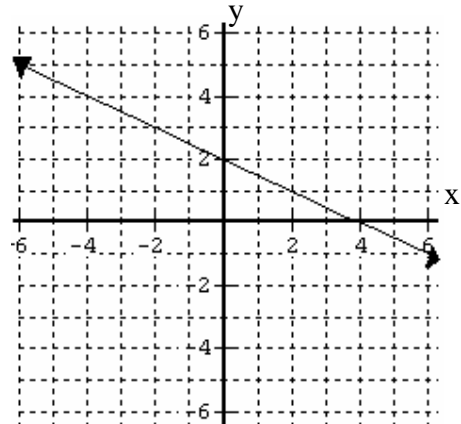
c)



b)



d)



ANSWER KEY

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. b | 2. c | 3. c | 4. d | 5. c | 6. a | 7. b | 8. d | 9. d | 10. a |
| 11. b | 12. b | 13. b | 14. a | 15. a | 16. b | 17. b | 18. a | 19. b | 20. a |
| 21. d | 22. a | 23. a | 24. b | 25. c | 26. c | 27. b | 28. a | 29. a | 30. a |
| 31. a | 32. b | 33. c | 34. a | 35. b | | | | | |