

**BASIC ALGEBRA**  
**Practice Exam**

**Name** \_\_\_\_\_

**Form 1**

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:  $7.96 \times 10^{-2}$

a) 0.00796

b) 0.0796

c) 796

d) 7,960

17. Convert to scientific notation: 650,000

a)  $65 \times 10^4$

b)  $6.5 \times 10^5$

c)  $6.5 \times 10^{-5}$

d)  $0.65 \times 10^6$

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)  $(x - 4)(x - 2y)$

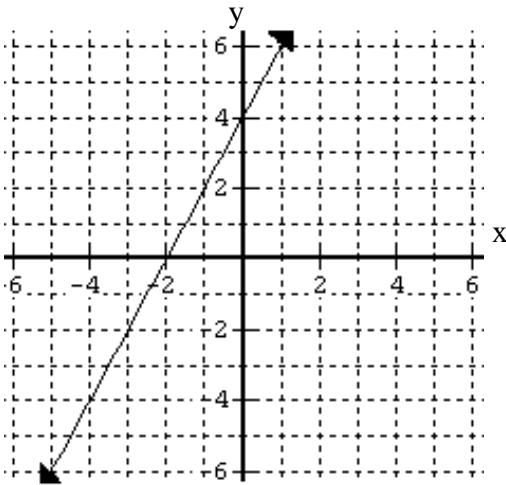
26. Identify a factor of the following trinomial:  $x^2 - 9x + 20$
- a)  $(x+5)$                       b)  $(x+4)$                       c)  $(x-5)$                       d)  $(x-10)$
27. Identify a factor of the following trinomial:  $5x^2 - 9x - 2$
- a)  $(5x+2)$                       b)  $(5x+1)$                       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:  $x + 3y = 7$

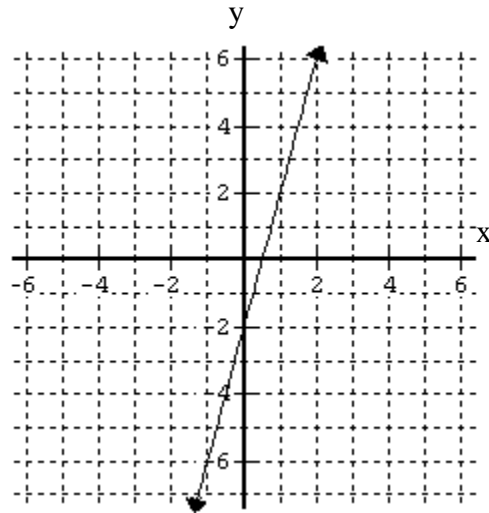
- a)  $\left(0, \frac{7}{3}\right)$       b)  $(0, 7)$       c)  $\left(7, \frac{7}{3}\right)$       d)  $(7, 0)$

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

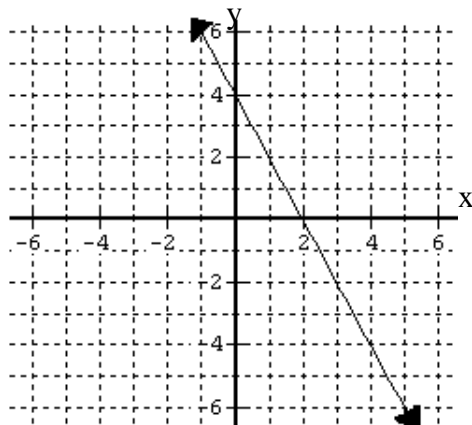
a)



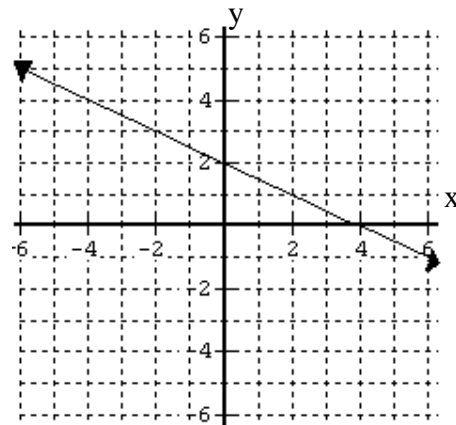
c)



b)



d)



### ANSWER KEY

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					