

ELEMENTARY ALGEBRA

Suggested time – 40 minutes

35 Questions

Directions: In this section solve each problem. Then decide which is the best of the choices given.

1. Which of the following is greater than -6 ?

- (A) -7 (B) -6.3 (C) -2 (D) -9

2. $5(x + 3) =$

- (A) $5x + 3$ (B) $5x + 15$ (C) $5x + 8$ (D) $x + 15$

3. $\frac{21 - (-7)}{7} =$

- (A) 2 (B) 4 (C) 10 (D) 22

4. $12x - 16y - 5x + y =$

- (A) $7x^2 - 15y^2$ (B) $17x - 17y$ (C) $7x - 15y$ (D) $7 - 15y$

5. $8\left(-\frac{1}{8}\right)$

- (A) -1 (B) 0 (C) $\frac{7}{8}$ (D) $7\frac{7}{8}$

6. If $c = -3$, then $4c^2 + 5c - 2 =$

- (A) -53 (B) 7 (C) 19 (D) 127

7. Which of the following numbers is least?

- (A) $-\frac{1}{4}$ (B) 1 (C) 0 (D) -4

8. $\sqrt{36x^6} =$

- (A) $18x^4$ (B) $18x^3$ (C) $6x^4$ (D) $6x^3$

9. If $2x - 5 = -7$, then $x =$

- (A) 1 (B) -1 (C) 6 (D) -6

10. $(2x - 3)(2x + 3) =$

- (A) $2x^2 - 9$ (B) $4x^2 - 9$ (C) $4x^2 + 9$ (D) $4x^2 - 6x - 9$

11. $\frac{15x^2}{3x}$

- (A) $5x$ (B) $5x^2$ (C) $12x$ (D) $\frac{5}{x}$

12. $(2x^2y)^3$

(A) $6x^6y^3$

(B) $8x^5y^3$

(C) $8x^6y^3$

(D) $9x^6y^3$

13. On Monday, Dave drove exactly m miles. On Tuesday, he drove 112 fewer miles than he drove on Monday. Which of the following expressions represents the total number of miles Dave drove on both days?

(A) $m - 112$

(B) $112 - m$

(C) $112 - 2m$

(D) $2m - 112$

14. $3x - (5x - 4) =$

(A) $8x - 4$

(B) $-2x - 4$

(C) $-2x + 4$

(D) $3x - 1$

15. If $4x = 12 - 7x$, then $x =$

(A) -3

(B) $\frac{12}{11}$

(C) $\frac{11}{12}$

(D) $-\frac{12}{11}$

16. Of the following, which is a factor of $4x^3 - 2x^2 + 4x$?

(A) $2x$

(B) $4x$

(C) $8x$

(D) $2x^2$

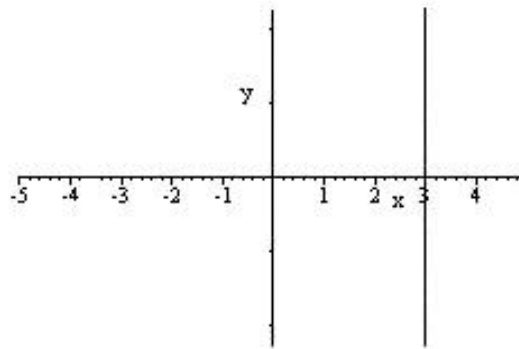
17. $4x^2 - 9y^2 =$

(A) $(4x + 3y)(4x - 3y)$

(B) $(2x + 3y)(2x - 3y)$

(C) $(4x - 9y)(x + y)$

(D) $(2x - 3y)^2$



18. Which of the following is an equation of the graph above?

(A) $y = x$

(B) $y = 3$

(C) $x = -3$

(D) $x = 3$

19. If $\frac{5}{2}x + 2 = 10$, then $x =$

(A) $\frac{16}{5}$

(B) 8

(C) $\frac{24}{5}$

(D) 20

20. $\frac{4}{x} - \frac{4}{y} =$

(A) $\frac{4y - 4x}{x + y}$

(B) $\frac{4y - 4x}{xy}$

(C) $\frac{4}{xy}$

(D) 0

21. $(a - 2b)^2 =$

- (A) $a^2 - 4ab + 4b^2$ (B) $a^2 - 2ab + 4b^2$ (C) $a^2 + 4b^2$ (D) $a^2 - 4b^2$

22. All the following points are on the graph of $y = 3x + 1$, EXCEPT

- (A) $(-2, -5)$ (B) $(1, 4)$ (C) $(0, 1)$ (D) $(2, 6)$

23. $\left(\frac{2s}{5r}\right)\left(\frac{10r}{6s^2}\right) =$

- (A) $6rs$ (B) $\frac{2r}{3s}$ (C) $\frac{2}{3s}$ (D) $\frac{12s^3}{50r^2}$

$$\begin{cases} x + 2y = 15 \\ x - y = 3 \end{cases}$$

24. For the system of equations above, what is the value of x ?

- (A) 4 (B) 6 (C) 7 (D) 9

25. Given $x = -|5| + |6|$, $y = |-5 + 6|$, and $z = |-5| + |6|$, which one of the following is true about the numbers x , y , and z ?

- (A) $x = y$ (B) $y = z$ (C) $x = y = z$ (D) $x < y$

26. Which of the following is a factor of $x^2 - 5x - 6$?

- (A) $x - 2$ (B) $x - 3$ (C) $x - 6$ (D) $x - 1$

27. The equation $\frac{N}{2} - 1 = 5$ could be used to represent which of the following sentences?

- (A) 1 less than half a number N equals 5.
 (B) Half a number N less than 1 equals 5.
 (C) A number N minus 1 divided by 2 equals 5.
 (D) Two times a number N minus 1 equals 5.

28. If 8 is $\frac{3}{4}$ of a number N , then $N =$

- (A) 6 (B) 32 (C) $\frac{32}{3}$ (D) 24

29. If $2x - y = 12$, and $x = 2y$, then $x =$

- (A) 4 (B) 8 (C) 16 (D) 0

30. Kim earns x dollars per hour for the first 40 hours she works in a week and $1\frac{1}{2}$ times as much for each hour over 40. If she worked 52 hours last week, how much, in dollars, did she earn?

- (A) $52x$ (B) $40 + 1\frac{1}{2}x$ (C) $52x + 1\frac{1}{2}x$ (D) $58x$

31. Which of the following is a factor of $3a^2 - 17a + 20$?

- (A) $3a - 20$ (B) $a - 4$ (C) $a + 4$ (D) $3a + 5$

32. $\frac{10}{3 + \frac{2}{x}} =$

(A) $2x$

(B) $\frac{10}{3x + 2}$

(C) $\frac{10x}{3x + 2}$

(D) $\frac{10}{3} + \frac{2}{x}$

33. In a certain school there were 5 more seniors than juniors. In one marking period, 12 percent of the juniors and 10 percent of the seniors were on the honor roll. If the total of juniors and seniors on the honor roll was 17, how many seniors were there in the school in that marking period?

(A) 80

(B) 75

(C) 155

(D) 8

34. $\frac{8}{x + 3} - \frac{5}{x + 1} =$

(A) $\frac{3}{4}$

(B) $\frac{3}{(x + 3)(x + 1)}$

(C) $\frac{3x + 23}{(x + 3)(x + 1)}$

(D) $\frac{3x - 7}{(x + 3)(x + 1)}$

35. If $\sqrt{x} - a = b$, then $x =$

(A) $(a + b)^2$

(B) $a + b$

(C) $\sqrt{b} + \sqrt{a}$

(D) $\sqrt{b + a}$