



PSC Mathematics Placement Test

SAMPLE

Actual test timed for 30 minutes

Good Luck!

Beginning Algebra

- Evaluate $\frac{12}{0}$.
A. 3 B. undefined C. 0 D. 12 E. -12
- Completely factor $4r^2 + 6r$
A. $10r^3$ B. $2r(2r + 3)$ C. $2(2r + 3)(r + 1)$
D. $24r^3$ E. $(2r + 3)(2r + 2)$
- simplify $(-3xy^2)(8y^3)$
A. $-24xy^5$ B. $-24xy^6$ C. $-24(xy^3)(y^2y^3)$
D. $-\frac{3}{8}xy^6$ E. $-5xy^5$
- Simplify $(-3)(-4) - 2(3)$
A. 6 B. 0 C. 12 D. -12 E. -6
- Given that $x = 2$ and $y = -1$, evaluate $3x^3 - 3xy$
A. -2 B. 5 C. 1 D. 14 E. 30
- The value of x which satisfies the equation $3(x + 2) = 2x - 5$ is
A. -11 B. $\frac{11}{4}$ C. 1 D. $-\frac{11}{2}$ E. $\frac{4}{9}$
- Simplify $(5x - 1)(2x - 3)$
A. $7x^2 + x + 3$ B. $10x^2 - 17x + 3$ C. $7x^2 - x - 3$
D. $10x^2 + x + 3$ E. $10x^2 + 7x - 3$
- Solve $\frac{2}{3}x + \frac{1}{2} = \frac{5}{2}$
A. $\frac{2}{3}$ B. $\frac{27}{4}$ C. $\frac{9}{5}$ D. $\frac{1}{3}$ E. 3

9. Simplify $(4a^2 - 3ab + b^3) - (2a^2 - ab + 2b^2)$
A. $2a^2 - ab$ B. $2a^2 - 3ab$ C. $2a^2 - 3ab + 2b^2$
D. $2a^2 - ab + 2b^2$ E. $2a^2 - 2ab - b^2$
10. Simplify $\frac{3}{4} - \frac{1}{3}$
A. $\frac{5}{7}$ B. 1 C. $\frac{1}{12}$ D. $\frac{5}{12}$ E. $\frac{1}{7}$
11. Simplify $(3x - 4x^2) + (5x^2 - 2x)$
A. $9x^2 + 5x$ B. $x^2 + x$ C. $6x$
D. $x^2 - x$ E. $9x^2 - 6x$
12. Completely factor $a^2 - 7a + 12$
A. $(a + 3)(a - 4)$ B. $(a - 3)(a + 4)$ C. $(a - 3)(a - 4)$
D. $(a - 7)(a + 1)$ E. $(a - 7)(a + 5)$
13. Completely factor $3x^2 - 9$
A. $(3x - 3)(x + 3)$ B. $3(x + 1)(x - 3)$ C. $(3x - 9)(x + 1)$
D. $3(x + 3)(x - 3)$ E. $3(x^2 - 3)$
14. If $\frac{1}{8}$ of a number is 12, then $\frac{1}{4}$ of the number is
A. 4 B. 16 C. 24 D. 36 E. 9
15. If $3x + 2 = 7x + 5y$, then x equals
A. $\frac{5y - 3}{4}$ B. $\frac{2 - 5y}{4}$ C. $3y - 3$ D. $\frac{2 + 5y}{4}$ E. $5y - 5$

Intermediate Algebra

16. Evaluate 4^{-3}
A. $\frac{1}{12}$ B. -12 C. $\frac{1}{64}$ D. 9 E. -9

17. Simplify $(r^2s^4)^{\frac{3}{4}}$
- A. r^6s^{12} B. $(rs)^{\frac{11}{4}}$ C. r^8s^3 D. $r^{\frac{3}{2}}s^3$ E. $(rs)^3$
18. Simplify $8^{-\frac{2}{3}}$
- A. 16 B. $\frac{1}{16}$ C. -4 D. $\frac{1}{4}$ E. -8
19. Solve $x^2 - 5x = -6$ for x
- A. 5 or 1 B. 2 or 3 C. 3 D. 7 or 3 E. 5 or 7
20. Simplify $\frac{6a^2b^3}{3ab} \cdot \frac{4a^2 - 16}{a + 2}$
- A. $2a^2b^2$ B. $8ab(a + 1)$ C. $2ab + 2$
D. $2ab(4a + 4)$ E. $8ab^2(a - 2)$
21. Simplify $\frac{a}{a^2 - 9} + \frac{2}{a + 3}$
- A. $\frac{3a^2 + 3a - 18}{(a^2 - 9)(a + 3)}$ B. $\frac{a^2 + 3}{2a^2 - 18}$ C. $\frac{2}{(a - 9)(a + 3)}$
D. $\frac{3(a - 2)}{a^2 - 9}$ E. $\frac{2}{a^2 - 6}$
22. The slope of the line $x + 2y = 6$ is
- A. $-\frac{3}{2}$ B. 2 C. 3 D. $\frac{1}{2}$ E. $-\frac{1}{2}$
23. The slope of the line joining $(-5, -3)$ and $(-2, 6)$ is
- A. 3 B. $-\frac{7}{3}$ C. $-\frac{1}{3}$ D. $\frac{7}{3}$ E. $-\frac{3}{7}$

24. Simplify $\frac{x^2 - 2x}{x^2 + 2x} \div \frac{x^2 - 4}{x^2 - 4x + 4}$
- A. $\frac{(x-2)^2}{(x+2)^2}$ B. 1 C. $\frac{x^2(x+2)}{x-3}$
 D. $\frac{x^3(x-2)}{18(x+3)}$ E. $\frac{(x-2)(x+3)}{2x}$
25. Find the x-intercept of $4x + 3y = 8$
- A. 0 B. $-\frac{5}{2}$ C. 2 D. 5 E. $\frac{8}{3}$
26. Simplify $\sqrt{18x^4y^3}$
- A. $9x^2y$ B. $3x^2y\sqrt{2y}$ C. $3xy\sqrt{xy}$ D. $3xy\sqrt{2}$ E. $\sqrt{2x}$
27. Simplify $\left(\frac{y^{-3}}{x^{-2}y^2}\right)^{-2}$
- A. $-x^4y^2$ B. $\frac{y^{13}}{x^4}$ C. $-x^4y^{25}$ D. $-\frac{x^4}{y^2}$ E. $\frac{y^{10}}{x^4}$
28. Solve $x^2 + 7x + 5 = 0$ for x
- A. 5 or 2 B. $7 \pm \frac{\sqrt{29}}{2}$ C. $\frac{-7 \pm \sqrt{29}}{2}$
 D. $\frac{7 \pm \sqrt{29}}{2}$ E. $\sqrt{7} \pm \frac{29}{2}$
29. Completely factor $x^4 - 16$
- A. $(x^2 - 4)(x^2 + 4)$ B. $(x + 2)^2(x - 2)^2$ C. $(x^2 + 4)(x - 2)(x + 2)$
 D. $(x^2 - 16)(x^2 + 1)$ E. $(x - 4)(x + 4)(x^2 + 1)$
30. For the system of equations $\begin{cases} 3x - 2y = 5 \\ 4x - 3y = 7 \end{cases}$, the value of x that satisfies both is
- A. 0 B. 2 C. 3 D. -1 E. 1

ANSWER KEY

1. B
2. B
3. A
4. A
5. E
6. A
7. B
8. E
9. E
10. D
11. B
12. C
13. E
14. C
15. B
16. C
17. D
18. D
19. B
20. E
21. D
22. E
23. A
24. B
25. C
26. B
27. E
28. C
29. C
30. E