

Math 102 Intermediate Algebra Readiness Self Test

Use this test to see if your algebra background is sufficient for Math 102: Intermediate Algebra. The test covers material from Math 100: Introductory Algebra as currently taught via correspondence at UND. These are topics that would normally appear in Algebra I in high school. Suggested use: Maximum time allowed is 45 minutes. Do not use a calculator. Do not refer to a textbook. A score of at least 15 correct would suggest sufficient preparation for Math 102. Problems you get wrong should at least look familiar and you should be able to see how to do such problems by referring to a textbook.

1. Evaluate: $(-6)(-5) + 3^2$.
2. Evaluate: $-2^2 + (-4)^2$.
3. Evaluate: $5 - |(3)(2) - (4)(7)|$.
4. Evaluate: $\left(-\frac{2}{3}\right)^3$.
5. Evaluate $a^2 + 2bc$ if $a = -2$, $b = 3$ and $c = 4$.
6. Simplify: $4(2x + 1) - 3(6x - 2)$.
7. Simplify: $-3\sqrt{50}$.
8. Solve: $3x + 1 = 2(5x - 3)$.
9. Solve: $5x - 3 > 6$.
10. Solve: $4(x + 1) \geq 3(2x - 1)$.
11. Solve: $|2x + 11| = 5$.
12. Solve: $|3x - 1| \leq 10$.
- 13: If Al can mow the lawn in 3 hours and Bill can mow the lawn in 6 hours, how long would it take them to mow the lawn working together?
14. Is $x = -2$ a solution to the equation $x^2 + 6x + 9 = 2x + 5$?
- 15: Simplify: $(-3ab^3)(2a^2b^{-5})$.
16. Multiply: $(3x^2 + x - 2)(2x + 3)$.
17. Simplify: $\frac{-14a^5b^2}{21a^3b^5}$.
18. Subtract: $(3x^2 + 11x - 2) - (x^2 + 5x - 3)$.
19. Multiply: $(2x + y)(2x - y)$.
- 20: Expand: $(3x - 1)^2$.
- 21: Divide: $\frac{4x^3 + 11x^2 + 10x + 8}{x + 2}$.
22. Factor: $x^2 + 5x - 24$.
23. Factor: $9x^2 - 4y^2$.
24. Factor: $12t^2 + 16t - 3$.
25. Solve: $4x^2 + 27x - 7 = 0$.

Solutions

(1) 39

(2) 12

(3) -17

(4) $-\frac{8}{27}$

(5) 28

(6) $-10x + 10$

(7) $-15\sqrt{2}$

(8) $x = 1$

(9) $x > \frac{5}{9}$

(10) $x \leq \frac{7}{2}$

(11) $x = -3, -8$

(12) $-3 \leq x \leq \frac{11}{3}$.

(13) 2 hours

(14) Yes

(15) $\frac{-6a^3}{b^2}$

(16) $6x^3 + 11x^2 - x - 6$

(17) $-\frac{2a^2}{3b^3}$

(18) $2x^2 + 6x + 1$

(19) $4x^2 - y^2$

(20) $9x^2 - 6x + 1$

(21) $4x^2 + 3x + 4$

(22) $(x + 8)(x - 3)$

(23) $(3x + 2y)(3x - 2y)$

(24) $(6t - 1)(2t + 3)$

(25) $x = \frac{1}{4}, -7$