

When you have finished, check your answers against the key which is on the last page. A score of 15 out of 20 is passing.

___1. Find the solution of the equation: $2(1 - x) = x + 8$

- A. -3
- B. 6
- C. -2
- D. 4

___2. Find all real solutions of the equation: $x^2 + 3x - 10 = 0$

- A. 2
- B. -5, 2
- C. 5, -2
- D. 5

___3. Simplify the expression: $x - 3 \cdot x + 3$

- A. $-2x + 3$
- B. $x^2 - 9$
- C. $x^2 - 6x + 9$
- D. $x^2 - 6x - 9$

___4. Find all complex solutions of the equation: $x^2 - 2x + 5 = 0$

- A. $2 \pm 2i$
- B. 0, 2
- C. $\frac{x^2 + 5}{2}$
- D. $1 \pm 2i$

___5. Simplify the expression: $\frac{(x^2)^3}{(x^2)(x^3)}$

- A. 1
- B. x
- C. x^2
- D. x^3

___6. Solve the literal equation for P : $A - P = \frac{A + P}{B}$

- A. $P = \frac{A(B - 1)}{B + 1}$
- B. $P = -A$
- C. $P = 1$
- D. $P = -\frac{P}{B}$

___7. Solve the inequality: $2 - x > 10$

- A. $x < -8$
- B. $x < -12$
- C. $x > -5$
- D. $x > -8$

___8. Perform the operations and simplify: $\frac{1}{\frac{1}{x} + \frac{1}{y}} =$

- A. $x + y$
- B. $\frac{x + y}{xy}$
- C. $\frac{xy}{x + y}$
- D. $\frac{1}{x} + \frac{1}{y}$

___9. Simplify the expression: $\frac{12m^4n}{15mn^2}$

- A. $\frac{12m^3}{15n}$
- B. $\frac{4m^3n}{5n^2}$
- C. $\frac{4m^3}{5}$
- D. $\frac{4m^3}{5n}$

___10. Simplify the expression by rationalizing the denominator: $\frac{1 + \sqrt{15}}{4 - \sqrt{15}}$

- A. $1 + \sqrt{15}$
- B. $19 + 5\sqrt{15}$
- C. $\frac{2}{3}$
- D. $\frac{1}{4}$

___11. What is the slope of the line through the points $(3, -1)$ and $(5, 7)$?

- A. 3
- B. $\frac{1}{4}$
- C. 4
- D. 1

___12. How would the following set be written in interval notation? $\{x \mid -2 < x \leq 1\}$

- A. $(-2, 1)$
- B. $(-2, 1]$
- C. $(-\infty, -2) \cup [1, \infty)$

D. $[-2, 1)$

___13. Find the product of the complex numbers: $(2 - 3i)(1 + 2i)$

- A. $8 + i$
- B. $2 - 6i$
- C. $-4 + i$
- D. 8

___14. Find a value c so that the quadratic expression will be a perfect square: $x^2 - 6x + c$

- A. 36
- B. -9
- C. 9
- D. -36

___15. Add the following fractions: $\frac{2}{x} + \frac{x-1}{x+1}$

- A. $\frac{x^2 + x + 2}{x^2 + x}$
- B. $\frac{x+1}{2x+1}$
- C. 2
- D. $\frac{2-x}{x}$

___16. Simplify the following expression: $\frac{x^3 - x^2 - 2x}{x^3 + 4x^2 + 3x}$

- A. $-\frac{1}{4}$
- B. $\frac{x-2}{x+3}$
- C. $-\frac{2}{3}$
- D. $-\frac{3}{7}$

___17. For what value of x is the following expression undefined? $\frac{x-3}{2-x}$

- A. 3
- B. 3 and 2
- C. 2
- D. Its defined for all values of x

___18. Find the solution of the equation: $|1 - x| = 5$

- A. 6
- B. 4
- C. -4
- D. 6 and -4

___19. $\sqrt{(-4)^2} =$

- A. -4
- B. -2
- C. 2
- D. 4

___20. Perform the indicated operations and simplify the result: $\frac{2a^2b}{b^2} \div \frac{6a^3}{b}$

- A. $\frac{12a^5}{b^2}$
- B. $\frac{1}{3a}$
- C. $\frac{1}{3a^2}$
- D. $\frac{1}{3ab}$

Answer key on next page.

1→C 6→A 11→C 16→B
2→B 7→A 12→B 17→C
3→A 8→C 13→A 18→D
4→D 9→D 14→C 19→D
5→B 10→B 15→A 20→B