Unit 2: Quadratic Equations

SSC-II Mathematics (Federal Board, National Book Foundation) | 36 MCQs

Choose the correct answer. The correct option is shown in **bold**. Each question carries one mark.

---

1. The standard form of a quadratic equation in x is

A. $ax^2 + bx + c = 0, a = 0$ **B. $ax^2 + bx + c = 0, a \neq 0$**

C. $ax^3 + bx^2 + c = 0$ D. $ax + b = 0, a \neq 0$

2. Which of the following is a quadratic equation?

A. $2x + 3 = 0$ B. $x^3 + x = 0$

C. $x^2 - 5x + 6 = 0$ D. $x/2 = 5$

3. The degree of a quadratic equation is

A. 2 B. 3

C. 1 D. 0

4. The solution set of $x^2 - 5x + 6 = 0$ is

A. $\{-2, -3\}$ B. $\{-1, -6\}$

C. $\{1, 6\}$ **D. {2, 3}**

5. The solution set of $x^2 - 4 = 0$ is

A. {2, −2} B. {2}

C. {4, −4} D. {16, −16}

6. The solution set of $(x - 2)(x + 5) = 0$ is

A. $\{-2, 5\}$ B. $\{2, 5\}$

C. {2, −5} D. $\{-2, -5\}$

7. The solution set of $x^2 = 3x$ is

A. {3, −3} B. {0, −3}

C. {3} **D. {0, 3}**

8. The solution set of $2x^2 - x - 1 = 0$ is

A. $\{1, 1/2\}$ **B. {1, −1/2}**

C. $\{-1, -1/2\}$ D. $\{-1, 1/2\}$

9. The solution set of $x^2 - 6x + 9 = 0$ is

A. {3, −3} B. {9}

C. {−3} **D. {3}**

10. The quadratic formula for $ax^2 + bx + c = 0$ is

A. $x = (-b \pm \sqrt{(b^2 - 4ac)})/2a$ B. $x = (-b \pm \sqrt{(b^2 - 4ac)})/a$

C. $x = (-b \pm \sqrt{(b^2 + 4ac)})/2a$ D. $x = (b \pm \sqrt{(b^2 - 4ac)})/2a$

11. The discriminant of $ax^2 + bx + c = 0$ is

A. $b - 4ac$ B. $4ac - b^2$

C. $b^2 - 4ac$ D. $b^2 + 4ac$

12. The discriminant of $2x^2 + 3x - 2 = 0$ is

A. 1 **B. 25**

C. 9 D. −7

13. The roots of $x^2 + 2x + 1 = 0$ are

A. real and equal B. irrational and unequal

C. real and unequal D. complex conjugates

14. If the discriminant of a quadratic equation is negative, its roots are

A. real and unequal B. rational

C. complex conjugates D. real and equal

15. If the discriminant of a quadratic equation with rational coefficients is 16, its roots are

A. real and equal B. complex

C. irrational and unequal **D. rational and unequal**

16. The roots of $x^2 + x + 1 = 0$ are

A. rational **B. complex numbers**

C. real and equal D. irrational

17. The value of k for which $x^2 + kx + 9 = 0$ has equal roots is

A. ±3 B. 9

C. 6 **D. ±6**

18. To make $x^2 + 6x$ a perfect square, we add

A. 36 B. 3

C. 9 D. 6

19. To make $x^2 - 10x$ a perfect square, we add

A. 25 B. 100

C. 5 D. 10

20. The roots of $x^2 + 4 = 0$ are

A. ±2 **B. ±2i**

C. ±4 D. ±4i

21. The sum of the roots of $2x^2 - 6x - 4 = 0$ is

A. −3 B. 2

C. 3 D. −2

22. The product of the roots of $2x^2 - 6x - 4 = 0$ is

A. −2 B. −3

C. 2 D. 3

23. The sum of the roots of $x^2 + 5x + 6 = 0$ is

A. −6 B. 5

C. 6 **D. −5**

24. The sum of the roots of $3x^2 - 11x - 4 = 0$ is

A. $-4/3$ **B. $11/3$**

C. $-11/3$ D. $4/3$

25. The quadratic equation whose roots are 2 and 3 is

A. $x^2 - 5x + 6 = 0$ B. $x^2 + 5x + 6 = 0$

C. $x^2 - 6x + 5 = 0$ D. $x^2 - 5x - 6 = 0$

26. The quadratic equation whose roots are -1 and 4 is

A. $x^2 - 3x + 4 = 0$ B. $x^2 + 3x + 4 = 0$

C. $x^2 - 3x - 4 = 0$ D. $x^2 + 3x - 4 = 0$

27. If α and β are the roots of $x^2 - 7x + 12 = 0$, then $\alpha^2 + \beta^2$ equals

A. 13 B. 37

C. 49 **D. 25**

28. If α and β are the roots of $x^2 - 7x + 12 = 0$, then $1/\alpha + 1/\beta$ equals

A. 12/7 **B. 7/12**

C. $-7/12$ D. 1/12

29. If 2 is a root of $x^2 - 5x + k = 0$, then k equals

A. 10 B. -6

C. 4 **D. 6**

30. The roots of $ax^2 + bx + c = 0$ are reciprocals of each other if

A. $b = 0$ **B. $c = a$**

C. $c = -a$ D. $a = b$

31. The roots of $ax^2 + bx + c = 0$ are equal in magnitude but opposite in sign if

A. $b = 0$ B. $b^2 = 4ac$

C. $c = 0$ D. $a = c$

32. Two numbers whose sum is 10 and product is 21 are

A. 1 and 9 B. 4 and 6

C. 3 and 7 D. 2 and 8

33. To solve $x^4 - 5x^2 + 4 = 0$, the substitution $y = x^2$ gives

A. $y^2 - 5y - 4 = 0$ **B. $y^2 - 5y + 4 = 0$**

C. $y^4 - 5y + 4 = 0$ D. $y^2 + 5y + 4 = 0$

34. The solution set of $x^4 - 5x^2 + 4 = 0$ is

A. $\{\pm 1, \pm 2\}$ B. $\{\pm 2\}$

C. $\{\pm 1, \pm 4\}$ D. $\{1, 4\}$

35. The solution of $x + 1/x = 2$ is

A. $x = -1$ B. $x = 0$

C. $x = 2$ **D. $x = 1$**

36. The solution set of $x + y = 3$ and $x^2 + y^2 = 5$ is

A. {(1, 2)}

B. {(−1, −2), (−2, −1)}

C. {(1, 2), (2, 1)}

D. {(0, 3), (3, 0)}