

MULTIPLE CHOICE QUESTIONS

1. If $\frac{1}{2}$ is a root of the quadratic equation $x^2 + kx - \frac{5}{x} = 0$, then the value of k is:

(a) 2
(b) -2
(c) $\frac{1}{4}$
(d) $\frac{1}{2}$

2. If one root of the equation $px^2 - 14x + 8 = 0$ is six times the other, then p is equal to

(a) 2
(b) 3
(c) 1
(d) None of these

3. The roots of $x^2 - 2x - (r^2 - 1) = 0$ are:

(a) $1 - r, r - 1$
(b) $1 - r, r + 1$
(c) $1, r$
(d) $1 - r, r$

4. Which of the following equations has the sum of its roots as 3?

(a) $x^2 + 3x - 5 = 0$
(b) $-x^2 + 3x + 3 = 0$

(c) $2x^2 - \frac{3}{2}x - 1 = 0$
(d) $3x^2 - 3x - 3 = 0$

5. If the sum and product of the roots of the quadratic equation $ax^2 - 5x + c = 0$ are each equal to 10, then the values of a and c are

(a) $\frac{1}{2}$ and -5
(b) $\frac{1}{2}$ and 5
(c) 5 and $\frac{3}{2}$
(d) $\frac{3}{2}$ and 5

6. The roots of the quadratic equation $2x^2 - x - 6 = 0$ are

(a) -2, $\frac{3}{2}$
(b) 2, $-\frac{3}{2}$
(c) -2, $-\frac{3}{2}$
(d) 2, $\frac{3}{2}$

7. If the roots of $x^2 + Kx + 12 = 0$ are in the ratio 1 : 3, then the value of K is equal to
 (a) ± 6 (b) ± 7 (c) ± 8 (d) ± 9

8. Which of the following is not a quadratic equation?

- (a) $(2x - 1)(x - 3) = (x + 5)(x - 1)$ (b) $x^2 - 5x + 3 = (x + 2)(x - 2)$
 (c) $x^2 - 2x + 2(3 - x) = 0$ (d) $x^3 - 4x^2 - x + 1 = (x - 2)^3$

9. If the discriminant of the equation $6x^2 + bx + 2 = 0$ is 1, then the value of b is

- (a) 7 (b) -7 (c) ± 7 (d) $\sqrt{7}$

10. If discriminant $= 0$, then roots of a quadratic equation is

- (a) real and equal (b) no real roots
 (c) real and distinct (d) none

11. Which of the following equations has the product of its roots as 4?

- (a) $x^2 + 4x + 4 = 0$ (b) $x^2 + 4x - 4 = 0$
 (c) $-x^2 + 4x + 4 = 0$ (d) $x^2 + 4x - 24 = 0$

12. If the roots of the equation $3x^2 - kx + 3 = 0$ are real and equal then the value of k must be:

- (a) ± 6 (b) Between -6 and 6
 (c) Greater than 6 (d) Greater than 6 or less than -6

13. Which of the following is not a quadratic equation?

- (a) $2(x - 1)^2 = 4x^2 - 2x + 1$ (b) $(x^2 + 2x)^2 = x^4 + 3 + 4x^3$
 (c) $(\sqrt{2}x + \sqrt{3})^2 + x^2 = 3x^2 - 5x$ (d) $2x - x^2 = x^2 + 5$

14. Which of the following equations has 2 as a root?

- (a) $x^2 - 4x + 5 = 0$ (b) $2x^2 - 7x + 6 = 0$
 (c) $x^2 + 3x - 12 = 0$ (d) $3x^2 - 6x - 2 = 0$

15. Values of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is

- (a) 0 only (b) 4 (c) 8 only (d) 0, 8

16. The quadratic equation $2x^2 - \sqrt{5}x + 1 = 0$ has

- (a) two distinct real roots (b) no real roots
 (c) two equal real roots (d) more than 2 real roots

17. Which of the following equations has no real roots?

- (a) $x^2 - 4x + 3\sqrt{2} = 0$ (b) $x^2 - 4x - 3\sqrt{2} = 0$
 (c) $x^2 + 4x - 3\sqrt{2} = 0$ (d) $3x^2 + 4\sqrt{3}x + 4 = 0$

18. Which of the following equations has two distinct real roots?

- (a) $x^2 + 3x + 2\sqrt{2} = 0$ (b) $x^2 + x - 5 = 0$
 (c) $2x^2 - 3\sqrt{2}x + \frac{9}{4} = 0$ (d) $5x^2 - 3x + 1 = 0$

19. Which constant must be added and subtracted to solve the quadratic equation

$9x^2 + \frac{3}{4}x - \sqrt{2} = 0$ by the method of completing the square?

- (a) $\frac{1}{8}$ (b) $\frac{1}{64}$ (c) $\frac{1}{4}$ (d) $\frac{9}{64}$

20. The quadratic equation whose one of the roots is $(3 - \sqrt{5})$, is
 (a) $x^2 - 6x + 4 = 0$ (b) $3x^2 + 5x + 2 = 0$
 (c) $x^2 - 2x + 7 = 0$ (d) $2x^2 + 3x + 5 = 0$
21. The quadratic equation whose roots are $(2 + \sqrt{3})$ and $(2 - \sqrt{3})$ is
 (a) $2x^2 - 4x + 1 = 0$ (b) $x^2 - 4x + 1 = 0$
 (c) $x^2 - 6x + 4 = 0$ (d) None of these
22. What will be the middle term of the equation whose solutions are -4 and -5 ?
 (a) $20x$ (b) $-20x$ (c) $9x$ (d) $-9x$
23. The values of p and q if these are the roots of the equation $x^2 + px + q = 0$ are
 (a) $p = 1, q = -2$ (b) $p = 2, q = -1$ (c) $p = 1, q = 1$ (d) $p = 1, q = -1$
24. If -4 is a root of the equation $x^2 + px - 4 = 0$ and the quadratic equation $x^2 + px + k = 0$ has equal roots, then the value of k is
 (a) $\frac{9}{4}$ (b) $\frac{4}{9}$ (c) $-\frac{9}{4}$ (d) $-\frac{4}{9}$
25. If the equation $x^2 + 4x + k = 0$ has real and distinct roots then,
 (a) $K < 4$ (b) $K > 4$ (c) $K \geq 4$ (d) $K \leq 4$
26. The roots of the equation $x^2 - x - p(p + 1) = 0$, where p is a constant, are
 (a) $p, p + 1$ (b) $-p, p + 1$ (c) $p, -p(p + 1)$ (d) $-p, -(p + 1)$
27. One of the roots the quadratic equation $6x^2 - x - 2 = 0$ is
 (a) $\frac{1}{2}$ (b) $-\frac{1}{2}$ (c) $-\frac{2}{3}$ (d) -1
28. If 2 is a root of the equation $2x^2 - (k + 1)x + (5k - 3) = 0$, then the value of k is
 (a) 0 (b) -2 (c) 1 (d) -1
29. If $x^2 - 2x + 1 = 0$ then the value of $x + \frac{1}{x}$ is :
 (a) -2 (b) 2 (c) $-\frac{2}{3}$ (d) $\frac{2}{3}$
30. Which of the following is a root of the equation $2x^2 - 5x - 3 = 0$?
 (a) $x = 3$ (b) $x = 4$ (c) $x = 1$ (d) $x = -3$
31. The value of k for which $3x^2 + 2x + k = 0$ has real roots is:
 (a) $k > \frac{1}{3}$ (b) $k \leq \frac{1}{3}$ (c) $k \geq \frac{1}{3}$ (d) $k < \frac{1}{3}$
32. If the roots of $ax^2 + bx + c = 0$ are equal in magnitude but opposite in sign, then
 (a) $a = c$ (b) $b = 0$ (c) $c = 0$ (d) None of these

Answers:

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|---------|---------|---------|---------|---------|
| 1. (a) | 2. (b) | 3. (b) | 4. (b) | 5. (b) |
| 6. (b) | 7. (c) | 8. (b) | 9. (c) | 10. (a) |
| 11. (a) | 12. (a) | 13. (c) | 14. (b) | 15. (d) |
| 16. (b) | 17. (a) | 18. (b) | 19. (b) | 20. (a) |
| 21. (b) | 22. (c) | 23. (a) | 24. (a) | 25. (a) |
| 26. (b) | 27. (b) | 28. (d) | 29. (b) | 30. (a) |
| 31. (b) | 32. (b) | | | |