



Laying the foundation of lifelong success

## **CHAPTER 4**

# **Quadratic Equations**

**(Previous Years' Questions)**

**MCQ**

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1. The roots of the quadratic equation  $(x-1)^2 = 16$  are :  
(A) 5, 3  
(B) 4, -4  
(C) 5, -3  
(D) -5, 3 (2026)
2. If the roots of the quadratic equation  $\sqrt{3}x^2 - kx + 2\sqrt{3} = 0$  are real and equal, then the value(s) of  $k$  is/are:  
(A)  $\pm \sqrt{24}$   
(B) 0  
(C) 4  
(D) 5 (2026)
3. The value of  $p$  for which roots of the quadratic equation  $x^2 - px + 6 = 0$  are rational, is  
(A) 1  
(B) -5  
(C) 25  
(D)  $\sqrt{5}$  (2026)
4. The value of  $k$  for which the equation  $kx^2 - 6x - 4 = 0$  has real and equal roots, is  
(A)  $\frac{9}{4}$

(B)  $-4$

(C)  $-\frac{9}{4}$

(D)  $-2$

(2026)

5. The quadratic equation whose roots are 7 and  $\frac{1}{7}$  is :

(A)  $7x^2 - 50x + 7 = 0$

(B)  $7x^2 - 50x + 1 = 0$

(C)  $7x^2 + 50x - 7 = 0$

(D)  $7x^2 + 50x - 1 = 0$

(2025)

6. The quadratic equation whose sum and product of roots are ' $a$ ' and ' $\frac{1}{a}$ ', respectively is :

(A)  $ax^2 - ax + 1 = 0$

(B)  $ax^2 - a^2x + 1 = 0$

(C)  $ax^2 + ax + 1 = 0$

(D)  $ax^2 + a^2x - 1 = 0$

(2025)

7. If  $\frac{x}{12} - \frac{3}{x} = 0$ , then the values of  $x$  are:

(A)  $\pm 6$

(B)  $\pm 4$

(C)  $\pm 12$

(D)  $\pm 3$

(2025)

8. The discriminant of the quadratic equation  $b^2x + ax + c = 0$ ,  $b \neq 0$  is given by:  
(A)  $b^2 - 4ac$   
(B)  $\sqrt{b^2 - 4ac}$   
(C)  $\sqrt{a^2 - 4bc}$   
(D)  $a^2 - 4bc$  (2025)
9. The value of 'a' for which  $ax^2 + x + a = 0$  has equal and positive roots is :  
(A) 2  
(B) -2  
(C)  $\frac{1}{2}$   
(D)  $-\frac{1}{2}$  (2025)
10. Which of the following equations is a quadratic equation?  
(A)  $x^2 + 1 = (x - 1)^2$   
(B)  $(x + \sqrt{x})^2 = 2x\sqrt{x}$   
(C)  $x^3 + 3x^2 = (x + 1)^3$   
(D)  $(x + 1)(x - 1) = (x + 1)^2$  (2025)
11. If  $x^2 + bx + b = 0$  has two real and distinct roots, then the value of  $b$  can be

- (A) 0
- (B) 4
- (C) 3
- (D)  $-3$

**(2025)**

12. Which of the following equations is a quadratic equation?

- (A)  $x^3 = (x - 1)^3 + 3x^2$
- (B)  $x^3 = (x + 1)^3$
- (C)  $x^2 = \sqrt{x}$
- (D)  $x^2 + 1 = \frac{1}{x}$

**(2025)**

13. Which of the following equation is a quadratic equation?

- (A)  $(x + \frac{1}{x})^2 = 2$
- (B)  $(x - \sqrt{x})^2 + 2x\sqrt{x} = 0$
- (C)  $(x + 1)^3 = (1 - x)^3$
- (D)  $(\sqrt{x} + 1)^2 = x^2$

**(2025)**

14. Which of the following quadratic equations has real and equal roots ?

- (A)  $(x + 1)^2 = 2x + 1$
- (B)  $x^2 + x = 0$
- (C)  $x^2 - 4 = 0$

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(D)  $x^2 + x + 1 = 0$

(2025)

15. Which of the following quadratic equations has real and distinct roots?

(A)  $x^2 + 2x = 0$

(B)  $x^2 + x + 1 = 0$

(C)  $(x - 1)^2 = 1 - 2x$

(D)  $2x^2 + x + 1 = 0$

(2025)

16. Which of the following equations does not have a real root?

(A)  $x^2 = 0$

(B)  $2x - 1 = 3$

(C)  $x^2 + 1 = 0$

(D)  $x^3 + x^2 = 0$

(2025)

17. If  $x = 5$  is a solution of the quadratic equation  $2x^2 + (k - 1)x + 10 = 0$ , then the value of  $k$  is:

(A) 11

(B) 11

(C) 13

(D) -13

(Comptt., 2024)

18. If the roots of equation  $ax^2 + bx + c = 0, a \neq 0$  are real and equal, then which of the following relation is true ?
- (A)  $a = \frac{b^2}{c}$   
(B)  $b^2 = ac$   
(C)  $ac = \frac{b^2}{4}$   
(D)  $c = \frac{b^2}{a}$  (2024)
19. The quadratic equation  $x^2 + x + 1 = 0$  has \_\_\_\_\_ roots
- (A) real and equal  
(B) irrational  
(C) real and distinct  
(D) not-real (2024)
20. Value of  $k$  for which  $x = 2$  is a solution of the equation  $5x^2 - 4x + (2 + k) = 0$ , is
- (A) 10  
(B) -10  
(C) 14  
(D) -14 (2024)
21. The roots of the quadratic equation  $4x^2 - 5x + 4 = 0$  are

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- (A) irrational  
(B) rational and distinct  
(C) not real  
(D) rational and equal (2024)
22. If the discriminant of the quadratic equation  $3x^2 - 2x + c = 0$  is 16, then the value of  $c$  is:  
(A) 1  
(B) 0  
(C) -1  
(D)  $\sqrt{2}$  (2024)
23. If  $y = 1$  is one of the solutions of the quadratic equation  $py^2 + py + 3 = 0$ , then the value of  $p$  is:  
(A) -3  
(B) 2  
(C)  $\frac{-3}{2}$   
(D) -2 (2024)
24. The ratio of the sum and product of the roots of the quadratic equation  $5x^2 - 6x + 21 = 0$  is:  
(A) 5 : 21  
(B) 2 : 7  
(C) 21 : 5  
(D) 7 : 2 (2024)
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25. If the quadratic equation  $ax^2 + bx + c = 0$  has real and equal roots, then the value of  $c$  is:

(A)  $\frac{b}{2a}$

(B)  $\frac{b}{-2a}$

(C)  $\frac{b^2}{4a}$

(D)  $-\frac{b^2}{4a}$

(2024)

26. The values of  $k$  for which the equation  $4x^2 + kx + 9 = 0$  has real and equal roots are:

(a)  $\pm 11$

(b)  $\pm 16$

(c)  $\pm 6$

(d)  $\pm 3$

(Comptt., 2023)

27. The value of  $k$  for which the quadratic equation  $2x^2 - 10x + k = 0$  has real and equal roots, is:

(a)  $\frac{25}{2}$

(b)  $\frac{1}{5}$

(c)  $-\frac{5}{2}$

(d)  $\frac{1}{2}$

(Comptt., 2023)

28. The value(s) of  $k$  for which the equation  $2x^2 - kx + 1 = 0$  has real and equal roots is/are:

(a)  $2\sqrt{2}$

(b)  $-2\sqrt{2}$

(c)  $\pm 2\sqrt{2}$

(d) 2

(Comptt., 2023)

29. The least positive value of  $k$ , for which the quadratic equation  $2x^2 + kx - 4 = 0$  has rational roots, is

(A)  $\pm 2\sqrt{2}$

(B) 2

(C)  $\pm 2$

(D)  $\sqrt{2}$

(2023)

30. If  $x = 0.3$ , is a root of the equation  $x^2 - 0.9k = 0$ , then  $k$  is equal to :

(a) 1

(b) 10

(c) 0.1

(d) 100

(2023)

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

(a)  $2x^2 - 4x + 8 = 0$

(b)  $-x^2 + 4x + 4 = 0$

(c)  $\sqrt{2}x^2 - \frac{4}{\sqrt{2}}x + 1 = 0$

(d)  $4x^2 - 4x + 4 = 0$

(2023)

32. The roots of the equation  $x^2 + 3x - 10 = 0$  are :

(a) 2, -5

(b) -2, 5

(c) 2, 5

(d) -2, -5

(2023)

33. A quadratic equation whose roots are  $(2 + \sqrt{3})$  and  $(2 - \sqrt{3})$  is:

(a)  $x^2 - 4x + 1 = 0$

(b)  $x^2 + 4x + 1 = 0$

(c)  $4x^2 - 3 = 0$

(d)  $x^2 - 1 = 0$

(2023)

34. A quadratic equation whose roots are  $(3 - \sqrt{2})$  and  $(3 + \sqrt{2})$  is:

(a)  $x^2 - 6x + 7 = 0$

(b)  $x^2 + 6x + 7 = 0$

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(c)  $9x^2 - 2 = 0$

(d)  $x^2 - 7 = 0$

(2023)

35. If the quadratic equation  $ax^2 + bx + c = 0$  has two real and equal roots, then 'c' is equal to

(A)  $-\frac{b}{2a}$

(B)  $\frac{b}{2a}$

(C)  $-\frac{b^2}{4a}$

(D)  $\frac{b^2}{4a}$

(2023)

36. If 'p' is a root of the quadratic equation  $x^2 - (p + q)x + k = 0$  then the value of 'k' is

(A)  $p$

(B)  $q$

(C)  $p + q$

(D)  $pq$

(2023)

