

MATHEMATICS

CLASS -10

Chapter – 4 : QUADRATIC EQUATION

“WORKSHEET - 2”

Practice Multiple Choice Questions (30 Questions with Answer Key)

Q1. The sum of the roots of the quadratic equation $x^2 - 9x + 18 = 0$ is:

- (a) 9
- (b) -9
- (c) 18
- (d) -18

Q2. If the equation $x^2 - kx + 9 = 0$ has equal roots, then $k =$

- (a) ± 6
- (b) ± 3
- (c) ± 9
- (d) ± 12

Q3. The roots of the equation $x^2 - 3x - 10 = 0$ are:

- (a) 5, -2
- (b) -5, 2
- (c) 5, 2
- (d) -5, -2

Q4. A quadratic equation whose roots are 2 and -3 is:

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

Q5. The discriminant of $3x^2 - 2x + 1/3 = 0$ is:

- (a) 0
- (b) 1
- (c) 2
- (d) -1

Q6. If one root of the quadratic equation $x^2 - ax + 8 = 0$ is 4, then the value of a is:

- (a) 2
- (b) 4
- (c) 6
- (d) 8

Q7. If the roots of $ax^2 + bx + c = 0$ are real and distinct, then discriminant D is:

- (a) $D = 0$
- (b) $D > 0$
- (c) $D < 0$
- (d) $D \leq 0$

Q8. The positive root of $\sqrt{3x^2 + 6} = 9$ is:

- (a) 5
- (b) 4
- (c) 3
- (d) 6

Q9. If $x = 1$ is a common root of the equations $ax^2 + ax + 3 = 0$ and $x^2 + x + b = 0$, then $ab =$

- (a) 3 (b) 3.5
(c) 6 (d) -3

Q10. 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) $k \leq 4$

Q11. The roots of $100x^2 - 20x + 1 = 0$ are:

- (a) $1/10, 1/10$ (b) $-1/10, -1/10$
(c) $1/10, -1/10$ (d) $10, 10$

Q12. The sum of a number and its reciprocal is $5/2$. The number is:

- (a) 2 or $1/2$ (b) 3 or $1/3$
(c) 4 or $1/4$ (d) 5 or $1/5$

Q13. If the difference of roots of $x^2 - bx + c = 0$ is 1, then:

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

Q14. The roots of the equation $2x^2 - 5x + 3 = 0$ are:

- (a) 1, $3/2$ (b) -1, $-3/2$
(c) 1, $-3/2$ (d) -1, $3/2$

Q15. If α, β are the roots of $x^2 - p(x + 1) - c = 0$, then $(\alpha + 1)(\beta + 1) =$

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

Q16. If the sum of roots of an equation is 2 and the product of roots is -8, the quadratic equation is:

- (a) $x^2 - 2x - 8 = 0$ (b) $x^2 + 2x - 8 = 0$
(c) $x^2 - 2x + 8 = 0$ (d) $x^2 + 2x + 8 = 0$

Q17. Roots of the quadratic equation $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$ are:

- (a) $-5/\sqrt{2}, -\sqrt{2}$ (b) $5/\sqrt{2}, \sqrt{2}$
(c) $-5/\sqrt{2}, \sqrt{2}$ (d) $5/\sqrt{2}, -\sqrt{2}$

Q18. If the roots of $(b - c)x^2 + (c - a)x + (a - b) = 0$ are equal, then $2b =$

- (a) $a + c$ (b) $a - c$
 (c) $c - a$ (d) ac

Q19. If $x^2 + k(4x + k - 1) + 2 = 0$ has equal roots, then $k =$

- (a) $2/3, -1$ (b) $2/3, 1$
 (c) $-2/3, 1$ (d) $-2/3, -1$

Q20. The altitude of a right triangle is 7 cm less than its base. If hypotenuse is 13 cm, base is:

- (a) 12 cm (b) 5 cm
 (c) 7 cm (d) 9 cm

Q21. The perimeter of a rectangle is 82 m and its area is 400 m^2 . Its length is:

- (a) 25 m (b) 16 m
 (c) 20 m (d) 30 m

Q22. If the product of two consecutive positive integers is 306, the quadratic equation representing this is:

- (a) $x^2 + x - 306 = 0$ (b) $x^2 - x - 306 = 0$
 (c) $x^2 + x + 306 = 0$ (d) $x^2 - x + 306 = 0$

Q23. A speed of a motorboat in still water is 15 km/h. It goes 30 km downstream and returns in 4 hours 30 mins. Speed of stream is:

- (a) 5 km/h (b) 10 km/h
 (c) 6 km/h (d) 4 km/h

Q24. If two numbers differ by 3 and their product is 54, the quadratic equation is:

- (a) $x^2 - 3x - 54 = 0$ (b) $x^2 + 3x + 54 = 0$
 (c) $x^2 - 3x + 54 = 0$ (d) $x^2 + 54x - 3 = 0$

Q25. If the quadratic equation $ax^2 + bx + c = 0$ has roots which are equal in magnitude but opposite in sign, then:

- (a) $b = 0$ (b) $a = 0$
 (c) $c = 0$ (d) $b = c$

Q26. The value of $\sqrt{6 + \sqrt{6 + \sqrt{6 + \dots}}}$ is:

- (a) 3 (b) 2
 (c) 6 (d) -2

Q27. Roots of the quadratic equation $3x^2 - 2\sqrt{6}x + 2 = 0$ are:

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

Q28. If the ratio of roots of $x^2 + bx + c = 0$ is 1 : 2, then:

- (a) $2b^2 = 9c$ (b) $b^2 = 9c$
(c) $2b^2 = c$ (d) $b^2 = 2c$

Q29. If the roots of $x^2 - bx + c = 0$ are two consecutive integers, then $b^2 - 4c =$

- (a) 1 (b) 2
(c) 3 (d) 4

Q30. The quadratic formula for solving $ax^2 + bx + c = 0$ is $x =$

- (a) $(-b \pm \sqrt{b^2 - 4ac}) / 2a$ (b) $(b \pm \sqrt{b^2 - 4ac}) / 2a$
(c) $(-b \pm \sqrt{b^2 + 4ac}) / 2a$ (d) $(-b \pm \sqrt{b^2 - 4ac}) / a$

ANSWER KEY & SOLUTIONS GUIDE

Q.No - Ans	Q.No - Ans	Q.No - Ans
Q1: (a) 9	Q11: (a) $1/10, 1/10$	Q21: (a) 25 m
Q2: (a) ± 6	Q12: (a) 2 or $1/2$	Q22: (a) $x^2 + x - 306 = 0$
Q3: (a) 5, -2	Q13: (a) $b^2 - 4c = 1$	Q23: (a) 5 km/h
Q4: (a) $x^2 + x - 6 = 0$	Q14: (a) 1, $3/2$	Q24: (a) $x^2 - 3x - 54 = 0$
Q5: (a) 0	Q15: (a) $1 - c$	Q25: (a) $b = 0$
Q6: (c) 6	Q16: (a) $x^2 - 2x - 8 = 0$	Q26: (a) 3
Q7: (b) $D > 0$	Q17: (a) $-5/\sqrt{2}, -\sqrt{2}$	Q27: (a) $\sqrt{2/3}, \sqrt{2/3}$
Q8: (a) 5	Q18: (a) $a + c$	Q28: (a) $2b^2 = 9c$
Q9: (a) 3	Q19: (a) $2/3, -1$	Q29: (a) 1
Q10: (a) $k < 4$	Q20: (a) 12 cm	Q30: (a) $(-b \pm \sqrt{b^2 - 4ac}) / 2a$