**Class – X Chapter – 4 Quadratic Equation**

1. Is x = -2 a solution of the equation x2 – 2x + 8 = 0?
2. Is x2 + 7x + 5 = 0 quadratic equation? If yes then give reason?
3. If (x + a) is a factor of 2x2 + 2ax + 5x + 10 = 0, then find the value of a.
4. Solve 4x2 + 5x – 2 = 0.
5. 2/x2 - 5/x + 2 = 0
6. X2 + 5x – (a2 + a -6) = 0
7. 4x2 – 4a2x + (a4 – b4) = 0
8. Find the discriminant of the quadratic equation x2 – 4x + 1 = 0.
9. If the discriminant of the equation 6x2 – bx + 2 = 0 is 1, then find the value of b.
10. Determine the nature of the roots: (i) 4x2 – 2x = 3 (ii) 3x2 + 10x + = 0
11. The hypotenuse of right-angled triangle is 6m more than twice the shortest side. If the third side is 2m less than the hypotenuse, then find all sides of the triangle. (By Quadratic formula)
12. A rectangular park is to be designed whose breadth is 3m less than its length. Its area is to be 4 m2 more than the area of a park that has already been made in the shape of an isosceles triangle with its base as the breadth of the rectangular park and of altitude 12m. Find its length and breadth of the rectangular park.
13. A rectangular field is 20m long and 14m wide. There is a path of equal width all around it, having an area of 111 m2. Find the width of the path.
14. The area of a right-angled triangle is 480 cm2. If the base of the triangle is 8cm more than twice the height(altitude) of the triangle, then find the sides of the triangle.
15. If x = 3 is one root of the quadratic equation x2 - 2kx - 6 = 0, then find the value of k.
16. Find the discriminant of quadratic equation x2 - 7x + 2 = 0.
17. Determine the nature of the roots: 2x2 - x + 1 = 0.
18. If a number is added to twice its square, then the resultant is 21. Write the quadratic equation of this solution.
19. Solve for x: (i) – (2x - 7) = 0 (ii) + x = 13
20. Find the roots of the equation: (i) ax2 + a = a2x + x (ii) a2b2x2 + b2x – a2x – 1 = 0
21. Find the least positive value of k for which x2 + kx + 16 = 0 has real roots.
22. Find the value of k for which the quadratic equation 2x2 – kx + k = 0 has equal roots.
23. The sum of two number is 11 and the sum of their reciprocals is 11/28. Find the numbers.
24. The difference of two numbers is 4. If the difference of their reciprocals is 4/21, then find the two numbers.
25. The sum of two number is 9 and the sum of their reciprocals is 1/2. Find the numbers.

**ANSWERS:**

* 1. N0
  2. Yes
  3. a = 2
  4. /4 & -2/
  5. 2 & 1/2
  6. (a + 3), (a - 2)
  7. (a2 – b2)/2, (a2 + b2)/2
  8. 2
  9. -7 or 7
  10. (i) Real & Distinct (ii) Real & Distinct
  11. 10m, 24m & 26m
  12. 7m & 4m
  13. 1.5m
  14. 20cm, 48cm & 52cm
  15. K = ½
  16. 9
  17. Real & Distinct
  18. 2x2 + x – 21 = 0
  19. (i) 3/2, 7 (ii) 8, 20
  20. (i) a, 1/a (ii) -1/a2, 1/b2
  21. Least positive value of K is8
  22. K = 0, 8
  23. 4 & 7
  24. -7, -3 or 3, 7 25. 6 & 3