**CHAPTER 4**

**QUADRATIC EQUATION**

**(Assignment)**

**Solve the following questions**

**Q.1**: **Represent the following situations in the form of quadratic equations:**

**(i) The area of a rectangular plot is 528 m2. The length of the plot (in meters) is one more than twice its breadth. We need to find the length and breadth of the plot.**

**(ii) A train travels a distance of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance.**

**Q.2: Find the roots of quadratic equations by factorisation**:

**(i) √2 x2 + 7x + 5√2=0**

**(ii) 100x2 – 20 x + 1 = 0**

**Q.3: Find two consecutive positive integers, sum of whose squares is 365.**

**Q.4: Find the roots of the following quadratic equations, if they exist, by the method of completing the square:**

**(i) 2x2 – 7x +3 = 0**

**(ii) 2x2 + x – 4 = 0**

**Q.5: The diagonal of a rectangular field is 60 metres more than the shorter side. If the longer side is 30 metres more than the shorter side, find the sides of the field.**

**Q.6 : Solve the quadratic equation 2*x2* – 7*x* + 3 = 0 by using quadratic formula.**

**Q.7: Sum of the areas of two squares is 468 m2. If the difference of their perimeters is 24 m, find the sides of the two squares.**

**Q.8: Find the values of k for each of the following quadratic equations, so that they have two equal roots.**  
**(i) 2x2 + kx + 3 = 0**  
**(ii) kx (x – 2) + 6 = 0**

**(iIi) 2x2 + kx + 3 = 0**

**(iv) kx(x – 2) + 6 = 0**

**Q.9: Is it possible to design a rectangular park of perimeter 80 and area 400 sq.m.? If so find its length and breadth.**

**Q.10: Find the discriminant of the equation 3×2– 2x +1/3= 0 and hence find the nature of its roots. Find them, if they are real.**

**11. If x = 2 is a solution of the equation x² – 5x + 6k = 0, the value of k is \_ .**

**12. Check whether the following are quadratic equations:  
(i) (x – 2) (x + 5) = (x – 3) (x + 4) + x²   
(ii) x² – 3x + 5 = (x + 5)²  
(iii) x3 – 3x² + 5x = (x – 2)3   
(iv) (x – 7)x = 3X2 – 5   
(v) (x² + 1) (x + 2) = (x + 3)²  
(vi) (2x + 1) (x – 3) = (x – 1)²**

**13. Is x = -2 a solution of the equation x² – 2x + 8 = 0?**

**14. If x = 3 is one root of the quadratic equation x² – 2kx -6 = 0, then find the value of k. [CBSE 2018]**

**15. Are x = 0, x = 1 the solution of the equation x² + x + 1 = 0**

**16. Ruchir was asked his age by his friend. Ruchir said “The number you get when you subtract 25 times my age from twice the square of my age will be thrice your age.. If the friend’s age is 14 years, then the age of Ruchir is \_\_\_\_\_\_\_.**

**17. The number of integral values of x so that 22x² – 7 + 5 = 1 is \_\_\_\_\_\_.**

**18. Solve the following quadratic equation by factorisation: √3x² + 10x + 7√3 = 0.**

**19. If α, β are roots of x² + 5x + a = 0 and 2α + 5β = -1, then a is equal to -----.**

**20. α, β are roots of the equation (a + 1 )x² + (2a + 3)x + (3a + 4) = 0. If α. β = 2, then**

**α + β = ---**

**21. If the roots of the equation 12x² + m x + 5 = 0 are in the ratio 3 : 2, then m equals\_\_\_\_\_\_ .**

**22. For what value of k. the roots of the equation x² + 4x + k = 0 are real? [Delhi 2019]**

**23. Write the nature of roots of quadratic equation 4x² + 4√3x + 3 = 0.**

**25. Write the nature of roots of quadratic equation: 4x² + 6x + 3 = 0**

**26. If arithmetic mean of two numbers a and b is 8 and a b = 9, find a quadratic equation whose roots are a and b.**