

WEEKLY TEST ON QUADRATIC EQUATION

MAX MKS : 30

TIME: 1 HR

Q 1) Answer the following (1x5=5)

- a) If One Root Of $6x^2 - x - k = 0$ is $\frac{2}{3}$, Find k.
- b) How Many Real Roots Does $x^2 + 5 = 0$ Have?
- c) Find Two Numbers Whose Sum Is 27 And Product Is 182.
- d) Find k If $x^2 + k(2x + k - 1) + 2 = 0$ Has Real And Equal Roots.
- e) Assertion: $(2x - 1)^2 - 4x^2 + 5 = 0$ is not a quadratic equation.
Reason: An equation of the form $ax^2 + bx + c = 0$, $a \neq 0$, where $a, b, c \in \mathbb{R}$ is called a quadratic equation.

Q 2) Answer the following (2x5=10)

- a) Let p be a prime number. What is the quadratic equation having its roots as factors of p
- b) Find least positive value of k , for which the quadratic equation $2x^2 + kx - 4$ has rational roots
- c) The sum of two numbers is 34. If 3 is subtracted from one number and 2 is added to another, the product of these two numbers becomes 260. Find the numbers.
- d) Find p if One Root Of $px^2 - 14x + 8 = 0$ Is 6 Times The Other.
- e) Find the roots of quadratic equations by factorisation:
 $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

Q 3) Answer the following

- a) A school decides to create a rectangular garden in its campus to promote environmental

awareness. The total area of the garden is to be 60 square metres. The length of the garden is planned to be 4 metres more than twice its breadth. The school committee asks the mathematics teacher to help calculate the exact dimensions of the garden before purchasing fencing material. The teacher decides to use this as a classroom activity and asks students to form and solve a quadratic equation to find the answer. (5 Mks)

Questions:

- (i) If the breadth of the garden is x metres, write an expression for the length in terms of x .
- (ii) Form a quadratic equation using the given area.
- (iii) Solve the quadratic equation to find the value of x .
- (iv) What are the actual dimensions of the garden?
- (v) Find the perimeter of the garden and calculate the cost of fencing at the rate of rupees 50 per metre.

b) A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the differences of its distances from two diametrically opposite fixed gates A and B on the boundary is 7 metres. Is it possible to do so? If yes, at what distances from the two gates should the pole be erected?

c) 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. Find the speed of the train.
