

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

(i) The area of a rectangular plot is 528 m^2 . The length of the plot (in metres) 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. What is the speed of the train? (3)

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

(i) $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

(ii) $100x^2 - 20x + 1 = 0$ (3)

Q.3: Find two consecutive positive integers, sum of whose squares is 365. (2)

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

(i) $2x^2 - 7x + 3 = 0$

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

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. (2)

Q.6 : Solve the quadratic equation $2x^2 - 7x + 3 = 0$ by using quadratic formula. (2)

Q.7: Find the values of k for each of the following quadratic equations, so that they have two equal roots.

$kx(x - 2) + 6 = 0$ (2)

Q.8: Is it possible to design a rectangular park of perimeter 80 and area 400 sq.m.? If so find its length and breadth. (2)