

# DAV PUBLIC SCHOOL, IFFCO, PARADEEP

**CLASS-X**  
**SUB-MATHEMATICS**  
**TOPIC-QUADRATIC EQUATION**  
**WORKSHEET-STANDARD**

**Choose the most appropriate option:** (1mark each)

1. The quadratic equation  $2x^2 - \sqrt{5}x + 1 = 0$  has  
(A) two distinct real roots (B) two equal real roots  
(C) no real roots (D) more than 2 real roots
2. Sum of a number and its reciprocal is  $2\frac{1}{20}$ . The numbers is  
(A)  $\frac{5}{4}$  (B)  $\frac{4}{3}$  (C)  $\frac{3}{4}$  (D)  $\frac{1}{6}$

**Fill in the blanks:** (1mark each)

3. If  $x=2$  is a root of the equation  $3x^2 - 2px + 2m = 0$  and  $m=3$ , then value of  $p$  is \_\_\_\_\_.
4. Find the value(s) of  $k$  for which the quadratic equation  $4x^2 + 2\sqrt{2}kx + 18 = 0$  has coincident roots.

**Answer the following question:** (1mark each)

5. The product of two consecutive positive even integers is 528. Represent this situation in the form of a quadratic equation.
6. Find the value(s) of  $k$  for which the equation  $x^2 + 5kx + 16 = 0$  has real and equal roots.

**Short Answer Type Question –I** (2 marks each)

7. Find the values of  $k$  for which the quadratic equation  $(k + 4)x^2 + (k + 1)x + 1 = 0$  has equal roots.
8. Find the roots of the quadratic equation  $\sqrt{2x + 9} + x = 13$

**Short Answer Type Question –II** (3 marks each)

9.  $\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}$   $x \neq 1, 2$

10. Is it possible to design a rectangular park of perimeter 80m and area  $300\text{m}^2$ ?

11. If -5 is a root of the equation  $2x^2+px-15=0$  and the equation  $p(x^2+x)+k$  has equal roots, find the value of k.

**Long answer type question:**

**(4 marks each)**

12. A train travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/h more than its original speed. If it takes 3 hours to complete the total journey, what is its original speed?

13. Sum of the areas of two squares is  $468\text{ m}^2$ . If the difference of their perimeters is 24 m, find the sides of the two squares.

14. The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number. Find the two numbers.