

## Chapter- 4

### QUADRATIC EQUATIONS

#### WORKSHEET

01. Find the value of  $k$ , for which the quadratic equation  $2x^2 - kx + k = 0$  has equal roots.
02. If the discriminant of  $3x^2 + 2x + a = 0$  is double the discriminant of  $x^2 - 4x + 2 = 0$ , then what is the value of  $a$ .
03. For what value of  $k$  will  $\frac{7}{3}$  be a root of  $3x^2 - 13x - k = 0$ .
04. Find the value of  $p$  for which the quadratic equation  $x(x-4)+p=0$  has real roots.
05. Find the roots of the quadratic equation  $\sqrt{3}x^2 - 2x - \sqrt{3} = 0$ .
06. Using quadratic formula, determine the roots of the equation  $x - \frac{1}{x} = 3$ .
07. Find the value of  $k$  for which roots of the equation  $x^2 - 8kx + 2k = 0$  are equal.
08. Find the nature of roots of the quadratic equation  $\sqrt{2}x^2 - \frac{3}{\sqrt{2}}x + \frac{1}{\sqrt{2}} = 0$ .
09. Find the roots of the quadratic equation  $2x^2 + x - 6 = 0$  by factorisation method.
10. For what value of  $p$ . The equation  $2x^2 + 2x + p = 0$  has real roots.
11. Find the roots of the equation  $5x^2 - 6x - 2 = 0$  by the method of completing the square.
12. Find the roots of the equation  $\frac{1}{x+y} - \frac{1}{x-7} = \frac{11}{30}$ .
13. The sum of the reciprocals of Rehman's ages 3 years ago and 5 years from now is  $\frac{1}{3}$ . Find his present age.
14. A motor boat whose speed is 18 km/hr in still water takes 1 hour more to go 24 km upstream than to return down to the same spot. Find the speed of the stream.
15. The diagonal of a rectangular field is 60m more than the shorter side. If the longer side is 30m more than the shorter side, find the sides of the field.

16. Solve:  $\frac{1}{x+1} + \frac{2}{x+2} = \frac{4}{x+4}$ .

17. The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is  $2\frac{16}{21}$ . Find the fraction.

18. The product of the digits of a two digit positive number is 24. If 8 is added to the number than digits of the number are inter changed. Find the number.

19. Two water taps together can fill a tank in  $9\frac{3}{8}$  hours. The tap of larger diameter takes 10 hr less than the smaller one of fill the tank separately. Find the time in which each tap can separately fill the tank?

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

