

1. Solve for  $x$ :  $abx^2 + (b^2 - ac)x - bc = 0$
2. If  $(-4)$  is a root of the quadratic equation  $x^2 + kx - 4 = 0$ , and the quadratic equation  $x^2 + px + k = 0$  has equal roots, find the values of  $p$  and  $k$ .
3. Solve for  $x$ :  $\left(\frac{2x}{x-5}\right)^2 + \frac{10x}{x-5} - 24 = 0, x \neq 5$
4. Rs. 6500 were divided equally among a certain number of persons. Had there been 15 more persons, each would have got Rs. 30 less? Find the original number of persons.
5. A farmer wishes to grow a  $100 \text{ m}^2$  rectangular vegetable garden. Since he has only 30 m barbed wire, he fences three sides of the rectangular garden letting compound wall of his house act as the fourth side fence. Find the dimensions of his garden.
6. The product of two consecutive positive integers is 306. Find the integers.
7. Solve for  $x$ :  $2\left(\frac{x-1}{x+3}\right) - 7\left(\frac{x+3}{x-1}\right) = 5, x \neq -3, 1$
8. Solve for  $x$ :  $36x^2 - 12ax + a^2 - b^2 = 0$
9. A two digit number is such that the product of the digits is 20. If 9 is subtracted from the number, the digits interchange their places. Find the number.
10. 300 apples are distributed equally among a certain number of students. Had there been 10 more students, each would have received one apple less, find the number of students.