1. Find the roots of the quadratic equation: $\frac{1}{3}x^2 - \sqrt{11}x + 1 = 0$
2. Solve for x: $\frac{x+1}{x-1} + \frac{x-2}{x+2} = 3; x \neq 1, -2$
3. Solve for x: $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}; a \neq 0, b \neq 0, c \neq 0$ and $a + b + x \neq 0$
4. A shopkeeper buys a number of packets of biscuits for Rs. 80. If he had bought 4 more packets for the same amount, each packet would have cost Re. 1 less. How many packets did he buy?
5. The difference of two numbers is 5 and the difference of their reciprocals is $\frac{1}{10}$. Find the numbers.
6. Find the roots of the quadratic equation: $4x^2 - 4px + (p^2 - q^2) = 0$
7. If the equation $(1 + m^2)n^2x^2 + 2mncx + (c^2 - a^2) = 0$ has equal roots of x, prove that $c^2 = a^2(1 + m^2)$
8. Find two consecutive odd positive integers, sum of whose squares is 290.
9. A two – digit number is such that the product of the digits is 35. When 18 is added to this number, the digits interchange their places. Determine the number.
10. The difference of square of two numbers is 180. The square of the smaller number is 8 times the larger number. Find the two numbers.