Ch - 2 Linear Equations in one Variable

Q.1 Solve the following equations.

(a) $\dfrac{6x+7}{3x+2} = \dfrac{4x+5}{2x+3}$ (b) $6(5x+1) + x^2 = (x+1)(x2)$ (c) $\dfrac{5x+4}{7x+3} = \dfrac{5x-1}{7x-2}$

(d) $\dfrac{9x-7}{3x+5} = \dfrac{3x-4}{x+6}$ (e) $\dfrac{x-3}{x+3} = \dfrac{x-2}{x+2}$ (f) $\dfrac{1}{x-1} + \dfrac{3}{x+1} = \dfrac{4}{x}$

(g) $(x+2)(2x-3) = (2x+5)(x+4)$ (h) $(6x+5)(2x+3) = (4x+7)(3x+2)$

Q.2 Find a positive value of the variable x for which the following equations are satisfied.

(a) $\dfrac{x^2-9}{7-x^2} = \dfrac{-7}{9}$ (b) $\dfrac{x^2+7}{3x^2+10} = \dfrac{1}{2}$

Q.3 The difference between two positive integers is 75. The ratio of these integers is 1:4. Find the integers.

Q.4 If three consecutive multiples of 11 are multiplied by 2, 3 and 4 respectively and then added, the sum is 814. Find each of the multiples.

Q.5 Three numbers are in the ratio 3:4:5 if the sum of the largest and the smallest numbers exceeds the third number by 64, find the numbers.

Q.6 The denominator of a rational number is greater than its numerator by 5. If the numerator is increased by 11 and the denominator is decreased by 14, the new number becomes 5. Find the original rational number.

Q.7 The sum of the digits of a two-digit number is 9. If the digits are interchanged, the number obtained exceeds the original number by 27. Find the number.

Q.8 Natasha thinks of a number and subtracts $\dfrac{2}{3}$ from it and multiplies the result by 9. The product now obtained is 7 times the number she thought of. What is the number?

Q.9 The sum of the present ages of a father and son is 53 years. Four years ago, the father's age was four times the age of the son. Find their present ages.

Q.10 At present, Ankit is twice as old as his son. In four years, he will be four times as old as what his son was 9 years ago. Find the present ages of both of them.

Q.11 Srividya gets a certain amount of money on retirement. She deposits half the money in a bank, gives her daughter half of the remaining and additional sum of Rs. 6000. She gives her son the remaining amount which is found to be half of what she gave her daughter. What is the amount Srividya received on retirement?

Q.12   Devender bought some apples at the rate of Rs. 5 per apple. He also bought and equal number of bananas at the rate of Rs. 2 per banana. He sold the apples at a profit of 20 % and the bananas at a loss of 5%, but still made an overall profit of Rs. 360 after selling all the fruits. What is the number of apples he had purchased?

Q.13   The length of a rectangle exceeds its breadth by 7 cm. if the length is decreased by 4 cm and the breadth is increased by 3 cm, the area of the new rectangle is the same as the area of the original rectangle. Find the length and breadth of the original rectangle.

Q.14   The base of a triangle is $\frac{3}{4}$ th the length of the corresponding altitude. If the altitude is increased by 3 cm and the base is decreased by 2 cm, the area of the triangle remains the same. Find the base and altitude of the triangle.