TYPE/TOPIC OF QUESTIONS: SOLVING SIMULTANEOUS EQUATIONS BY SUBSTITUTION METHOD, ELIMINATION METHOD AND CROSS-MULTIPLICATION METHOD

1. Use the method of substitution to solve each other of the pair of simultaneous equations:

(a) $x + y = 15$ $x - y = 3$

(b) $x + y = 0$ $x - y = 2$

(c) $2x - y = 3$ $4x + y = 3$

(d) $2x - 9y = 9$ $5x + 2y = 27$

(e) $11y + 15x = -23$ $7y - 2x = 20$

(f) $5x - 6y = 2$ $6x - 5y = 9$

2. Solve each other pair of equation given below using elimination method:

(a) $x + 2y = -4$ $3x - 5y = -1$

(b) $4x + 9y = 5$ $-5x + 3y = 8$

(c) $9x - 6y = 12$ $4x + 6y = 14$

(d) $2y - (3/x) = 12$ $5y + (7/x) = 1$

(e) $(3/x) + (2/y) = (9/xy)$ $(9/x) + (4/y) = (21/xy)$

(f) $(4/y) + (3/x) = 8$ $(6/y) + (5/x) = 13$

(g) $5x + (4/y) = 7$ $4x + (3/y) = 5$

(h) $x + y = 3$ $-3x + 2y = 1$

(i) $-3x + 2y = 5$ $4x + 5y = 2$

3. Solve the following simultaneous equations:

(a) $3a + 4b = 43$ $-2a + 3b = 11$

(b) $4x - 3y = 23$ $3x + 4y = 11$

(c) $5x + (4/y) = 7$ $4x + (3/y) = 5$

(d) $4/(p - 3) + 6/(q - 4) = 5$ $5/(p - 3) - 3/(q - 4) = 1$

(e) $(l/6) - (m/15) = 4$ $(l/3) - (m/12) = 19/4$

(f) $3x + 2y = 8$ $4x + y = 9$

(g) $x - y = -1$ $2y + 3x = 12$

(h) $(3y/2) - (5x/3) = -2$ $(y/3) + (x/3) = 13/6$

(i) $x - y = 3$ $(x/3) + (y/2) = 6$

(j) $(2x/3) + (y/2) = -1$ $(-x/3) + y = 3$

(k) $5x + 8y = 9$ $2x + 3y = 4$

(l) $3 - 2(3a - 4b) = -59$ $(a - 3)/4 - (b - 4)/5 = 2^1/_{10}$

1. A fraction is such that if numerator is multiply by 3 and the denominator is reduce by 2 we get 3/5 but if the numerator is increased by 4 and the denominator is doubled we get 5/14. Find the fraction.

2. The sum of the numerator and denominator of a fraction is 12. If the denominator is increased by 1, the fraction becomes 7/6. Find the fraction.

3. A number consists of two digits whose sum if 5. When the digits are reversed, the number becomes greater by 9. Find the number.

4. The sum of a two digit number and the number obtained by reversing the digit is 110. The difference between the digits is 4. Find the number.

5. Seven times a 2 – digit number is equal to 4 times the number obtained by reversing the digits. The difference between the digits is 1. Find the number.

6. point A and B are 50 km part on a highway. A car starts from A and another car start from B at the same time. If they travelled in the same direction, they meet in 5 hours but if they move towards each other they meet in 1 hour. Find their speeds.

7. A boat goes 6 km upstream and 57 km downstream in 5 hours. In 9 hours it can go 21 km upstream and 38 km downstream. Determine the speed of stream and that of boat in still water.

8. The distance between two stations is 340 km. two trains starts simultaneously from these stations on parallel tracks to cross each other. If the speed on one of them is greater than the other by 5 km/hr and the distance between the two trains after 2 hours of their start is 30 km, find the speed of each train.

9. The area of a rectangle gets reduced by 10 square units if its length is reduced by 4 units and breadth is increase by 2 units. If we increased the length by 3 units and breadth by 4 units, the area is increased by 96 square units. Find the length and breadth of the rectangle.

10. Raga travel 150 km to his home partly by bus and partly by auto-rickshaw. He takes 2 hours if travels 30 km by bus and rest by auto-rickshaw. He takes 5 minutes longer if he travel 50 km by bus and the rest by auto-rickshaw. Find the speed of bus and the auto-rickshaw.