PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Q1. Determine graphically the vertices of a trapezium, the equations of whose sides are :

x=0, y=0, y=4 and 2x+y=6. Also,determine its area.

Q2. Solve the following equation :

$44 / (x+y) + 30 / (x-y) = 10$.

$55 / (x+y) + 40 / (x-y) = 13$.

Q3. Solve by the method of cross multiplication :

$a(x+y) + b(x-y) = a^2 - ab + b^2$

$a(x+y) - b(x-y) = a^2 + ab + b^2$

Q4. i) Determine the values of a and b so that the following system of equations has infinite number
of solutions:

$(2a-1)x + 3y - 5 = 0$

$3x + (b-1)y - 2 = 0$.

ii) Obtain the condition for the following system of equations to have a unique solution:

$ax+by = c$

$lx+my = n$

Q5. The sum of a two-digit number and the number obtained by reversing its order of its digitsd is 165.
If the digits differ by 3, find the number.

Q6. The sum of the numerator and denominator of a fraction is 12. If the denominator is increased by
3, the fraction becomes 1/2. Find the fraction.

Q7. A is elder to B by 2 years. A's father F is twice as old as A and B is twice as old as his sister S. If the ages of father and sister differ by 40 years, find the age of A.

Q8. After covering a distance of 30km with a uniform speed there is some defect in a train engine and therefore, its speed is reduced to 4/5 of itrs original speed. Consequently, the train reaches its destination late by 45 minutes. Had it happened after covering 18 kilometres more, the train would have reached 9 minutes earlier. Find the speed of the train and the distance of journey.

Q9. Students of a class are made to stand in rows. If one student is extra in a row, there would be 2 rows less. If one student is less in a row there would be 3 rows more. Find the number of students in the class.

Q10. A railway half ticket costs half the full fare and the reservation charge is the same on half ticket as on full ticket. One reserved first class ticket from Mumbai to Ahmedabad costs Rs216 and one full ticket and one half reserved first class tickets cost Rs327. What is the basic first class full fare and what is the reservation charge?