

**LINEAR EQUATIONS IN TWO VARIABLES**

- 1) For what value of 'k' will the following system of linear equations has no solution?

$$3x + y = 1$$

$$(2k - 1)x + (k - 1)y = 2k + 1.$$

- 2) Solve the following pair of equations by reducing them to a pair of linear equations.

$$\frac{5}{x-1} + \frac{1}{y-2} = 2 \quad ; \quad \frac{6}{x-1} - \frac{3}{y-2} = 1$$

- 3) 5 pencils and 7 pens together cost Rs 50, whereas 7 pencils and 5 pens together cost Rs.46. Represent the situation algebraically and then solve graphically (geometrically) to find the cost of one pencil and that of one pen.

- 4) Solve  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$  graphically. Shade the area bounded by these lines and the x-axis. Also find its area.

- 5) Robert went to a bank to withdraw Rs.2000. He asked the cashier to give him Rs.50 and Rs.100 notes only. Robert got 25 notes in all. Find how many notes of Rs.50 and Rs.100 he received.

- 6) Solve graphically the following pair of linear equations.

$$-3x + 2y = 14$$

$$2x + 3y = 8$$

- 7) A fraction becomes  $\frac{9}{11}$ , if 2 is added to both the numerator and the denominator. If, 3 is

added to both the numerator and the denominator it becomes  $\frac{5}{6}$ . find the fraction.

- 8) Solve algebraically for x and y:

$$\frac{5}{x-1} + \frac{1}{y-2} = 2 \quad \& \quad \frac{6}{x-1} - \frac{3}{y-2} = 2$$

- 9) The denominator of a fraction is 4 more than twice the numerator. When both the numerator and denominator are decreased by 6, then the denominator becomes 12 times the numerator. Determine the fraction.

- 10) The ratio of incomes of two persons is 9 : 7 and the ratio of their expenditures is 4 : 3. If each of them manages to save Rs 2000 per month, find their monthly incomes.

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- 11) From a bus stand in Bangalore , if we buy 2 tickets to Malleswaram and 3 tickets to Yeshwanthpur, the total cost is Rs 46; but if we buy 3 tickets to Malleswaram and 5 tickets to Yeshwanthpur the total cost is Rs 74. Find the fares from the bus stand to Malleswaram, and to Yeshwanthpur.
- 12) For what values of  $k$  will the following pair of linear equations have infinitely many solutions?  
 $kx + 3y - (k - 3) = 0$   
 $12x + ky - k = 0$
- 13) Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?
- 14) Solve:  
 $152x - 378y = -74$   
 $-378x + 152y = -604$
- 15) One says, "Give me a hundred, friend! I shall then become twice as rich as you". The other replies, "If you give me ten, I shall be six times as rich as you". Tell me what is the amount of their (respective) capital?

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