Latex Assignment3

D.V.S. NIKHIL

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Exercise 10.3.2

1. Form the pair of linear equations in the following problems and find their solutions graphically:

   (i) 10 students of Class X took part in a Mathematics quiz.If the number of girls is 4 more than the number of boys, find the number of boys and girls who took part in the quiz.

   (ii) 5 pencils and 7 pens together cost $Rs.50$ whereas 7 pencils and 5 pens together cost $Rs.46$. Find the cost of one pencil and that of one pen.

2. On comparing the ratios $\frac{a_1}{a_2}, \frac{b_1}{b_2} and \frac{c_1}{c_2}$,find out whether the lines representing the following pairs of linear equations intersect at a point, are parallel or coincident:

   (i)

   $$5x - 4y + 8 = 0 \tag{1}$$
   $$7x + 6y - 9 = 0 \tag{2}$$

   (ii)

   $$9x + 3y + 12 = 0 \tag{3}$$
   $$18x + 6y + 24 = 0 \tag{4}$$

   (iii)

   $$6x - 3y + 10 = 0 \tag{5}$$
   $$2x - y + 9 = 0 \tag{6}$$

3. On comparing the ratios $\frac{a_1}{a_2}, \frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$,find out whether the following equations are consistent, or inconsistent:

   (i)

   $$3x + 2y = 5; \tag{7}$$
   $$2x - 3y = 7 \tag{8}$$

(ii)

$$2x - 3y = 8; \quad (9)$$
$$4x - 6y = 9 \quad (10)$$

(iii)

$$\frac{3}{2}x + \frac{5}{3}y = 7; \quad (11)$$
$$9x - 10y = 14 \quad (12)$$

(iv)

$$5x - 3y = 11; \quad (13)$$
$$-10x + 6y = -22 \quad (14)$$

(v)

$$\frac{4}{3}x + 2y = 8; \quad (15)$$
$$2x + 3y = 12 \quad (16)$$

4. Which of the following pairs of linear equations are consistent/inconsistent? If consistent, obtain solution graphically:

(i)

$$x + y = 5; \quad (17)$$
$$2x + y = 10 \quad (18)$$

(ii)

$$x - y = 8; \quad (19)$$
$$3x - 3y = 16 \quad (20)$$

(iii)

$$2x + y - 6 = 0; \quad (21)$$
$$4x - 2y + 4 = 0 \quad (22)$$

(iv)

$$2x - 2y - 2 = 0; \quad (23)$$
$$4x - 4y - 5 = 0 \quad (24)$$

5. Half the perimeter of a rectangular garden,whose length is $4m$,more than its width,is $36m$. Find the dimensions of the garden.

6. Given the linear equation $2x + 3y - 8 = 0$,write another linear equation in two variables such that geometrical representation of the pair so formed is:

   (i) intersecting lines

   (ii) parallel lines

   (iii) coincident lines

7. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$.Determine the coordinates of the vertices of the triangle formed by these lines and the axis and shade the triangular region.