Latex Assignment3

D.V.S. NIKHIL

17 August,2023

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) $5x - 4y + 8 = 0$
   $7x + 6y - 9 = 0$

   (ii) $9x + 3y + 12 = 0$
   $18x + 6y + 24 = 0$

   (iii) $6x - 3y + 10 = 0$
   $2x - y + 9 = 0$

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) $3x + 2y = 5; 2x - 3y = 7$

   (ii) $2x - 3y = 8; 4x - 6y = 9$

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

   (iv) $5x - 3y = 11; -10x + 6y = 22$

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

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

   (i) $x + y = 5, 2x = 2y = 10$

(ii) $x - y = 8, 3x - 3y = 10$

(iii) $2x + y - 6 = 0, 4x - 2y - 4 = 0$

(iv) $2x - 2y - 2 = 0, 4x - 4y - 5 = 0$

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