

Latex Assignment3

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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)

$$5x - 4y + 8 = 0 \quad (1)$$

$$7x + 6y - 9 = 0 \quad (2)$$

(ii)

$$9x + 3y + 12 = 0 \quad (3)$$

$$18x + 6y + 24 = 0 \quad (4)$$

(iii)

$$6x - 3y + 10 = 0 \quad (5)$$

$$2x - y + 9 = 0 \quad (6)$$

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)

$$3x + 2y = 5; \quad (7)$$

$$2x - 3y = 7 \quad (8)$$

(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.