CHAPTER 6

LINEAR INEQUALITIES

IMPROVEMENT 2018

1. Solve the inequality:

    $$\frac{x}{2} \geq \frac{5x-2}{3} - \frac{7x-3}{5} \qquad 3$$

2. Solve the system of inequalities graphically:

    $$2x + y \geq 4$$
    $$x + y \leq 3 \ and \ 2x - 3y \leq 6 \qquad 4$$
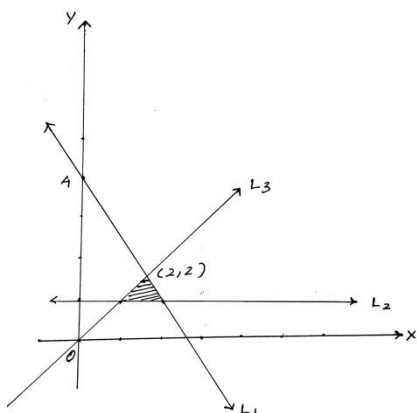
MARCH 2018

3. a) Solve the inequality:

    $$\frac{2x-1}{3} \geq \frac{3x-2}{4} - \frac{2-x}{5} \qquad (3)$$

    b) Represent the solution on a number line. (1)

4. The graphical solution of a system of linear inequalities is shown in the figure.

    a) Find the equation of the lines L_1, L_2, L_3. (4)
    b) Find the inequalities representing the solution region. (2)

IMPROVEMENT 2017

5. a) Solve $4x + 3 < 5x + 7$ (1)
    b) Solve graphically the system of inequation:

    $$x + 2y \leq 8; 2x + y \leq 8; x \geq 0; y \geq 0 \qquad (4)$$

MARCH 2017

6. a) Solve the inequality: $\frac{x}{3} > \frac{x}{2} + 1$. (2)

    b) Solve the system of inequalities graphically:

    $$2x + y > 6$$
    $$3x + 4y \leq 12 \qquad (3)$$

IMPROVEMENT 2016

7. a) Which among the following inequality represents the interval $[2, \infty)$ (1)
    i) $x - 3 \geq 5, x \in R$
    ii) $3x - 3 \geq 5, x \in R$
    iii) $3x - 1 \geq 3, x \in R$
    iv) $3x - 1 \geq 5, x \in R$

    b) Solve the following inequalities graphically.

    $$3x + 2y \leq 12; \ x \geq 1 \ ; \ y \geq 2 \qquad (3)$$

MARCH 2016

8. a) Which among the following is the interval corresponding to the inequality $-2 < x \leq 3$?
    i) $[-2, \ 3]$ ii) $[-2, 3)$
    iii) $(-2, 3]$ iv) $(-2, \ 3)$ (1)

    b) Solve the following inequalities graphically:

    $$2x + y \geq 4; \ x + y \leq 3 \ ; 2x - 3y \leq 6 \qquad (3)$$

IMPROVEMENT 2015

9. a) Solve $7x + 3 < 5x + 9$ and represent the solution on the number line. (M 2014)
    b) Solve $3x + 4y \leq 60 \ ; \ x + 3y \leq 30 \ ; \ x, y \geq 0$, graphically. (3)

MARCH 2015

10. a) The interval representing the solution of the inequality $3x - 1 \geq 5, x \in R$ is ……… (1)

b) Solve the following system of inequalities graphically: (3)

$$x + 2y \le 8 \; ; 2x + y \le 8 \; ; \; x \ge 0 \; ; y \ge 0$$

IMPROVEMENT 2014

11. a) Represent the inequality $x > -3$ on a number line. (1)

b) Solve the following inequalities graphically: $x + y \ge 5$; $x - y \le 3$ (3)

MARCH 2014

12. a) Solve $7x + 3 < 5x + 9$ and represent the solution on the number line (2)

b) Solve the following system of inequalities graphically:

$$x + 2y \le 8 \; ; \; 2x + y \le 8 \; ; \; x \ge 0, \; y \ge 0 \quad (3)$$

IMPROVEMENT 2013

13. a) Raju obtained 70 and 60 marks in first two examinations. Find the minimum marks he should get in the third examination to have an average of atleast 50 marks. (2)

b) Solve the following system of inequalities graphically. $3x + 2y \le 12, \; x \ge 1, \; y \ge 2$. (3)

MARCH 2013

14. a) Solve : 4x+3<3x+7. Represent the solution on the real line. (2)

b) Solve the following system of inequalities graphically. $3x + 2y \le 12; \; x \ge 0; \; y \ge 0$ (3)

IMPROVEMENT 2012

15. i) Solve $4x - 5y < 7$, when x is a real number. (2)

ii) Solve the following system of inequalities graphically $3x + 4y \le 12; x \ge 0; y \ge 0$. (3)

MARCH 2012

16. a) Solve the inequality $3(2 - x) \ge 2(1 - x)$

b) Solve the following system of inequalities graphically.

$$2x + y \ge 4, \; x + y \le 3, \; 2x - 3y \le 6 \quad (3)$$

IMPROVEMENT 2011

17. a) Solve the inequality: $1 \le \dfrac{2x + 3}{5} \le 4$ (2)

a) Solve graphically the inequalities: (3)

$$x \ge 0, \; y \ge 0, 5x + y \ge 5, \; x + 3y \ge 5$$

MARCH 2011

18. i) Solve the inequality:

$$2(2x + 3) - 10 < 6(x - 2) \quad (2)$$

ii) Solve the following system of inequalities graphically.

$$x - 2y \le 3; \; 3x + 4y \ge 12; \; x \ge 0, \; y \ge 0 \quad (3)$$

IMPROVEMENT 2010

19. a) Arathi took 3 examinations in a year. The marks obtained by her in the second and third examinations are more than 5 and 10 respectively than in the first examination. If her average mark is at least 80 find the minimum mark that she should get in the first examination? (2)

b) Solve the following system of inequalities graphically: (4)

$$2x + y \ge 6$$

$$3x + 4y \le 12$$

Page 2

MARCH 2010

20. i) Solve the inequality: $3(x-1) \le 2(x-3)$ (2)

ii) Solve the following system of inequalities graphically:

$5x + 4y \le 20; \ x \ge 1; \ y \ge 2$ (3)

IMPROVEMENT 2009

21. i) Solve the inequality: $\dfrac{3x-4}{2} \ge \dfrac{x+1}{4} - 1.$ (2)

ii) Solve the following system of linear inequalities graphically:

$x + 2y \le 8; \ 2x + y \le 8; \ x \ge 0; \ y \ge 0.$ (3)

MARCH 2009

22. a) Solve the inequality:

$2(2x+3) - 10 < 6(x-2)$ when x is a real number. (2)

b) Solve the following inequalities graphically: $2x + y \le 24; \ x + y \le 11$; $2x + 5y \le 40; \ x \ge 0; \ y \ge 0$. (3)

Never give up on
what you really want to do.
The person with big dreams is
more powerful than one with all the facts

Albert Einstein