

**Class: 11**  
**Subject: Math's**  
**Topic: Linear Inequalities**  
**No. of Questions: 25**

1. Solve  $5x - 3 \leq 3x + 1$  when  $x$  is an integer.
2. Solve  $30x < 200$  when  $x$  is a natural no.
3. Solve the inequality  $\frac{x}{2} \geq \frac{5x-2}{3} - \frac{7x-3}{5}$
4. Solve graphically  $x - y \leq 0$
5. A man wants to cut three lengths from a single piece of board of length 91 cm. The second length is to be 3 cm longer than the shortest and the third length is to be twice as long as the shortest. What are the possible lengths of the shortest board if the third piece is to be at least 5 cm longer than the second.
6. The water acidity in a pool is considered normal when the average P h reading of three daily measurements is between 7.2 and 7.8 if the first P h reading are 7.48 and 7.85, find the range of P h value for the third reading that will result in the acidity level being normal.
7. How many litres of water will have to be added to 1125 litres of the 45% sol. Of acid so that the resulting mixture will contain more than 25% but less than 30% acid content.
8. Solve graphically  $3x + 2y \leq 150$   $x + 4y \leq 80$   $x \geq 0$   $y \geq 0$
9. Solution set of the in inequations  $2x - 1 \leq 3$  and  $3x + 1 \geq -5$  is.
10. Solve  $7x + 3 < 5x + 9$ . Show the graph of the solution on number line.
11. Solve the inequality  $\frac{2x-1}{3} \geq \frac{3x-2}{4} - \frac{2-x}{5}$
12. Solve the inequalities  $3x + 4y \leq 12$  graphically

13. The longest side of a  $\Delta$  is 3 times the shortest side and the third side is 2 cm shorter than the longest side. . if the perimeter of the  $\Delta$  is at least 61 cm find the minimum length of the shortest side.
14. In drilling world's deepest hole it was found that the temperature T in degree Celsius, x km below the surface of earth was given by  $T = 30 + 25(x - 3)$ ,  $3 < x < 15$  At What depth will the tempt. Be between  $200^\circ\text{C}$  and  $300^\circ\text{C}$
15. A sol. Of 8% boric is to be diluted by adding a 2% boric acid sol. To it. The resulting mixture is to be more than 4 % but less than 6% boric acid. If we have 640 litres of the 8% sol. How many litre of the 2% sol. Will have to be added.
16. Solve graphically  $x + 2y \leq 10$   $x + y \geq 1$   $x - y \leq x \geq 0, y \geq 0$ .
17. If  $4x > -16$  then  $x \square - 4$ .
18. Solve  $5x - 3 < 3x + 1$  when x is an integer.
19. Solve the inequality  $\frac{1}{2}\left(\frac{3x}{5} + 4\right) \geq \frac{1}{3}(x - 6)$
20. Solve  $3x + 2y > 6$  graphically
21. Find all pairs of consecutive odd natural no. both of which are larger than 10 such that their sum is less than 40.
22. A company manufactures cassettes and its cost equation for a week is  $C = 300 + 1.5x$  and its revenue equation is  $R = 2x$ , where x is the no. of cassettes sold in a week. How many cassettes must be sold by the company to get some profit?
23. A manufacturer has 600 litre of a 12% sol. Of acid . How many litres of a 30% acid sol. Must be added to it so that acid content in the resulting mixture will be more than 15% but less 18%
24. Solve graphically  $x - 2y \leq 3$   $3x + 4y \geq 12$   $x \geq 0, y \geq 1$
25. A plumber can be paid under two schemes as given below. I: Rs 600 and Rs 50 per hr. II: Rs 170 per hr. If the job takes n hr. for what values of n does the scheme I gives the plumber the better wages.