



MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

LINEAR INEQUATIONS (IN TWO VARIABLES)

Solved Examples

$$1. 3x + 4y \leq 12$$



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2. Draw the graph of the solution set of the inequation

$$2x - y \geq 1$$

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3. $2x - 3y > 6$

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4. Solve the inequalities graphically in twodimensional plane:
 $x + y < 5$

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5. Solve $y < 2$ graphically.



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6. Solve the inequation $x < -3$ graphically



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7. Exhibit graphically the solution set of the linear inequations :



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8. Draw the graph of the solution set of the inequation

$$2x + y \geq 2, x - y \leq 1, x + 2y \leq 8, x \geq 0 \text{ and } y \geq 0$$

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9. Solve the following system of inequation by graphical method :

$$5x + 4y \leq 40, x \geq 2, y \geq 3$$

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10. Show that the following system of linear inequalities has no solutin $x + 2y \leq 3, 3x + 4y \geq 12, x \geq 0, y \geq 1$.

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11. Show that the solution set of the following system of linear inequalities is an unbounded region

$$2x + y \geq 8, x + 2y \geq 10, x \geq 0, y \geq 0.$$



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12. Find the linear inequations for which the shaded area in the figure given below is the solution set .



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13. Find the linear inequations for which the shaded region of the figure given below is the solution set



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14. Find the linear inequations for which the shaded region of the figure given below, is the solution set .



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15. A small manufacturing firm produces two types of gadgets A and B, which are first processed in the foundry

and then sent to another machine for finishing. The number of man-hours of labour required in each shop for the production of each unit of A and B and the number of man-hours for the firm available per week are as follows:



Formulate it in form of linear inequations .Draw the graph showing the solution of all these inequations .



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Exercise 7

1. Draw the graph of the solution set of each of the following inequations $x + y \geq 4$

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2. Draw the graph of the solution set of each of the following inequations $x - y \leq 3$

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3. Draw the graph of the solution set of each of the following inequations $y - 2 \leq 3x$

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4. Draw the graph of the solution set of each of the following inequations $x \geq y - 2$



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5. Construct the region represented by the inequations

$$3x + 2y > 6$$



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6. $3x + 5y < 15$



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$$7. x \geq 2, y \geq 3$$



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$$8. 3x + 2y \leq 12, x \geq 1, y \geq 2$$



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$$9. x + y \leq 6, x + y \geq 4$$



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$$10. 2x + y \geq 6, 3x + 4y \leq 12$$



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11. $x + y \leq 9, y > x, x \geq 0$



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12. $2x - y \leq 6, 3x + 4y \leq 12$



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13. $5x + 4y \leq 20, x \geq 1, y \geq 2$



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14. $3x + 4y \leq 60, x + 3y \leq 30, x \geq 0, y \leq 0$



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15. $2x + y \geq 4, x + y \leq 3, 2x - 3y \leq 6$



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16. $x + 2 \leq 10, x + y \leq 1, x - y \leq 0, x \geq 0, y \geq 0$



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17.

$$4x + 3y \leq 60, y \geq 2x, x \leq 60, y \geq 2x, x \geq 3, x \leq 0, y \leq 0$$



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18. $x - 2y \leq 2, x + y \leq 3, -2x + y \leq 4, x \geq 0, y \geq 0$



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19.

$$x + 2y \leq 100, 2x + y \leq 120, x + y \leq 70, x \geq 0, y \geq 0$$



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20.

$$x + 2y \leq 2000, x + y \leq 15,000, y \leq 600, x \geq 0, y \leq 0$$



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21. Show that each of the following systems of linear inequations has no solution :

$$3x + 2y \geq 24, 3x + y \leq 15, x \geq 4$$

$$2x - y \leq -2, x - 2y \geq 0, x \geq 0, y \geq 0$$



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22. Show that the solution of the following system of inequations is an unbounded set:

$$3x + y \geq 12, x + y \geq 9, x \geq 0, y \geq 0$$



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