** Graphical solution of linear inequalities in 2 variables :-

- The cartesian plane is devided into two equal sections by line.
- Each component is reffered to as a half plane.
- A non vertical line devides the plane into lower and upper half planes, while a vertical line divides it into left and right half planes.
- In the cartesian plane, a point will either lie on a line or in one of the half planes.
- The solution zone is the area that contains all of the solutions to an inequality.

Important notes ⇒

- An ordered pair (x, y) is a solution of linear inequation if the inequality is satisfied by (x, y)

  linear inequation ⇒ $ax + by + c = 0$; $a, b, c \in R$

*1. The region containing all the solutions of an inequality is called the solution region.

*2. In order to identify the half plane represented by an inequality, it is just sufficient to take any point (a, b) (not on line) and check whether it satisfies the inequality or not. If yes, then the inequality represents the half plane and shade the region which contain the point. otherwise, the inequality represents the half plane which doesn't contain the point within it.

*3. If an inequality is of type $ax + by \geq c$ or $ax + by \leq c$, then the points on the line $ax + by = c$ are also included in the solution region. Represent it by dark line.

*4. If an inequality is of the form $ax + by > c$ or $ax + by < c$, then the points on the line $ax + by = c$ are not to be included in the solution region. Represent it by dotted line.