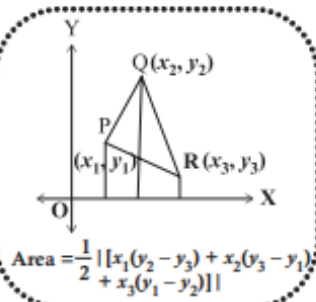


## CHAPTER : 7 LINES (IN TWO DIMENSIONS)

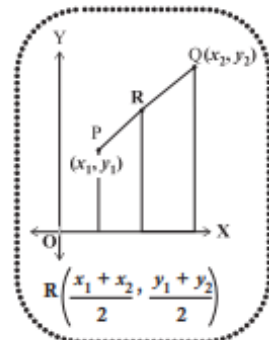
### MIND MAPS LEARNING MADE SIMPLE

Study of algebraic equations on graphs

|                           |                          |
|---------------------------|--------------------------|
| (-, +)<br>II<br>Quadrant  | (+, +)<br>I<br>Quadrant  |
| (-, -)<br>III<br>Quadrant | (+, -)<br>IV<br>Quadrant |



Area of Triangle

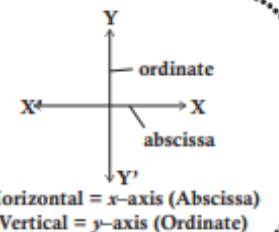
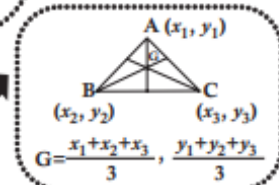


Mid-point Line Segment

### Lines (In Two-Dimensions)

Meaning

Centroid



Coordinate axis

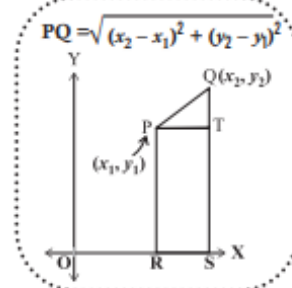
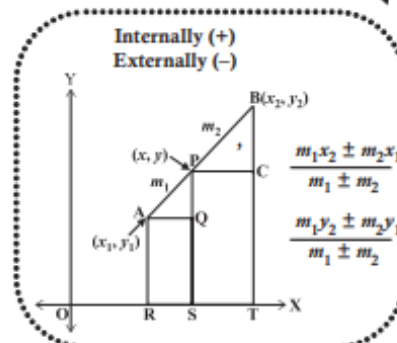
Section formula

Distance formula

**Example**  
Find point of Trisection of line segment AB, A(2, -2) and B(-7, 4)

Coordinate of P  $\left( \frac{1(-7) + 2(2)}{1+2}, \frac{1(4) + 2(-2)}{1+2} \right)$   
i.e., (-1, 0)

Coordinate of Q  $\left( \frac{2(-7) + 1(2)}{2+1}, \frac{2(4) + 1(-2)}{2+1} \right)$   
i.e., (-4, 2)



**Example**  
Are the following points vertices of a square : (1, 7), (4, 2), (-1, -1), (-4, 4)?  
A (1, 7); B = (4, 2); C = (-1, -1); D = (-4, 4)

$AB = \sqrt{(1-4)^2 + (7-2)^2} = \sqrt{34}$   
 $BC = \sqrt{(4+1)^2 + (2+1)^2} = \sqrt{34}$   
 $CD = \sqrt{(-1+4)^2 + (-1-4)^2} = \sqrt{34}$   
 $DA = \sqrt{(1+4)^2 + (7-4)^2} = \sqrt{34}$   
 $AC = \sqrt{(1+1)^2 + (7+1)^2} = \sqrt{68}$   
 $BD = \sqrt{(4+4)^2 + (2-4)^2} = \sqrt{68}$

Since,  $AB = BC = CD = DA$  and  $AC = BD$ .  
All four sides and diagonals are equal Hence, ABCD is a square