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# Coordinate Geometry

## * Learning points :-

- Any point on x-axis is $(a, 0)$.
- Any point on y-axis is $(0, b)$.
- Equation of x axis $- y = 0$
- Equation of y axis $- x = 0$
- Equation of a line $\parallel$ to x axis is $y = k$.
- Equation of a line $\parallel$ to y axis is $x = k$.
- $AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

## * EX- 7.1 :-

1. i) $\sqrt{(4-2)^2 + (1-3)^2} = \sqrt{(2)^2 + (-2)^2} = \sqrt{8} = 2\sqrt{2}$

ii) $\sqrt{(-1+5)^2 + (3-7)^2} = \sqrt{(4)^2 + (-4)^2} = \sqrt{32} = 4\sqrt{2}$

iii) $\sqrt{(a-a)^2 + (-b-b)^2} = \sqrt{(-2a)^2 + (-2b)^2} = \sqrt{4a^2 + 4b^2} = 2\sqrt{a^2 + b^2}$

2. $\sqrt{(36-0)^2 + (15-0)^2} = \sqrt{(36)^2 + (15)^2} = \sqrt{1296 + 225} = \sqrt{1521} = 39$.

3. $A = (1, 5)$ ; $B = (2, 3)$ ; $C = (-2, -11)$

$AB = \sqrt{(2-1)^2 + (3-5)^2} = \sqrt{(1)^2 + (-2)^2} = \sqrt{1+4} = \sqrt{5}$

$BC = \sqrt{(-2-2)^2 + (-11-3)^2} = \sqrt{(-4)^2 + (-14)^2} = \sqrt{16+196} = \sqrt{212}$

$CA = \sqrt{(-2-1)^2 + (-11-5)^2} = \sqrt{(-3)^2 + (-16)^2} = \sqrt{9+256} = \sqrt{265}$

Since $AB + BC \neq CA$.

$\therefore$ The points are not collinear.

4. $AB = \sqrt{(6-5)^2 + (4+2)^2} = \sqrt{(-1)^2 + (6)^2} = \sqrt{37}$

$BC = \sqrt{(7-6)^2 + (-2-4)^2} = \sqrt{(-1)^2 + (6)^2} = \sqrt{37}$

$CA = \sqrt{(7-5)^2 + (-2+2)^2} = \sqrt{(-2)^2 + (0)^2} = 2$.

$\therefore AB = BC = \sqrt{37}$

$\therefore \Delta ABC$ is an isosceles triangle.