CHAPTER-6

Coordinate Geometry

Exercise 7.1

1) i) (2,3), (4,1)

Ans. Distance between the two points are given by

$\sqrt{(x_1-x_2)^2+(y_1-y_2)^2}$

Therefore, distance between (2,3) & (4,1) is given by

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

$= \sqrt{4+4} = \sqrt{8} = 2\sqrt{2}$

ii) (-5,7) (-1,3)

Ans. $l = \sqrt{(-5-(-1))^2+(7-3)^2}$

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

$= \sqrt{16+16}$

$= \sqrt{32} = 4\sqrt{2}$

iii) (a,b) (-a,-b)

Ans $l = \sqrt{(a-(-a))^2+(b-(-b))^2}$

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

$= \sqrt{4a^2+4b^2}$

$= 2\sqrt{a^2+b^2}$

2) $l = \sqrt{(36-0)^2+(15-0)^2}$

$= \sqrt{36^2+15^2}$

$= \sqrt{1296+225} = \sqrt{1521} = 39$

Yes, we can find the distance between the given towns A & B

Assume town A at origin point (0,0).

Therefore town B will be at point (36,15) with respect to town A

Hence as calculated above the distance between town A & B will be 29km.

3) Let = A = (1,5) B = (2,3) C = (-2,-11)

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

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

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

Since $AB + BC \neq CA$.

$\therefore$ Therefore, the points (1,5), (2,3) & (-2,-11) are not collinear.

4) let A = (5,-2) B = (6,4) C = (7,-2)

$AB = \sqrt{(5-6)^2+(-2-4)^2} = \sqrt{(-1)^2+(-6)^2} = \sqrt{1+36} = \sqrt{37}$

$BC = \sqrt{(6-7)^2+(4-(-2))^2} = \sqrt{(-1)^2+(6)^2} = \sqrt{1+36} = \sqrt{37}$

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

$\therefore AB = BC$

So it is a isosceles triangle.