EXERCISE 7.1

1. (2, 3), (4, 1)

Ans:- Let the given points be P(2, 3) and Q(4, 1)

Then $x_1 = 2$, $y_1 = 3$, $x_2 = 4$ and $y_2 = 1$

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

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

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

$= \sqrt{8} = 2\sqrt{2}$ unit.

2. Find the distance between the points (0,0) and (36,15)

Sol: Let points be A(0,0) and B(36,15)

The distance between two points is

$AB = \sqrt{(x_2-x_1)^2+(y_2+y_1)^2} = \sqrt{(36-0)^2+(15-0)^2}$

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

3. Determine if the points A(1,5), B(2,3) and C(-2,-11) are collinear

Sol: Let the given points A(1,5), B(2,3) and (-2,-11). Then

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

$= \sqrt{1+4} = \sqrt{5}$

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

$= \sqrt{16+196} = \sqrt{212} = 2\sqrt{53}$

$AC = \sqrt{(-2-1)^2+(-11-5)^2} = \sqrt{(3)^2+(-16)^2}$

$= \sqrt{9+256} = \sqrt{265}$

$AB + BC \neq AC$