CLASS XI MATHS ASSIGNMENT Continuation....

Chapter 11. STRAIGHT LINES

General direction for the students :-Whatever be the notes provided , everything must be copied in the Maths Copy and then do the Home work in the same Copy.

EXERCISE 11.1

3 ii) General point on Y-axis $(0\ , y)$

A/Q $\sqrt{(3-0)^2 + (2-y)^2} = \sqrt{(-5-0)^2 + (-2-y)^2}$

$\Rightarrow 9 + 4 + y^2 - 4y = 25 + 4 + y^2 + 4y$

$\Rightarrow -16 = 8y$

$\Rightarrow$ y=-2

Point(0 , -2)

.....

12. Let the point be (x , y)

A/Q $\sqrt{(x-5)^2 + (y-4)^2} = 2$

$\Rightarrow x^2 + y^2 - 10x + 25 - 8y + 16 = 4$

$\Rightarrow x^2 + y^2 - 10x - 8y = -37$ .....(1)

A/Q $\sqrt{(x-11)^2 + (y+2)^2} = 10$

$\Rightarrow x^2 + y^2 - 22x + 4y + 121 + 4 = 100$

$\Rightarrow x^2 + y^2 - 22x + 4y = -25$ .....(2)

(1)- (2) $\Rightarrow 12x - 12y = -12$

$\Rightarrow x = y - 1$

Sub. In (1) $\Rightarrow y^2 - 2y + 1 + y^2 - 10y + 10 - 8y = -37$

$\Rightarrow 2y^2 - 20y + 48 = 0$

$\Rightarrow y^2 - 10y + 24 = 0$

$\Rightarrow y = 12\ , -2$

When $y = 12$ $\Rightarrow x = 11$ $\Rightarrow$ $point(11,12)$

When $y = -2$ $\Rightarrow x = -3$ $\Rightarrow point\ (-3\ , -2)$

21. Let the point P(x , y)

A/Q $|PA| = |PB| \Rightarrow \sqrt{(x-3)^2+(y-4)^2} = \sqrt{(x-5)^2+(y+2)^2}$

$\Rightarrow -6x - 8y + 25 = -10x + 4y + 29$

$\Rightarrow 4x - 12y = 4$

$\Rightarrow x = 3y + 1$ .....(1)

A/Q area of $\Delta PAB = 10$

$\Rightarrow \frac{1}{2}\begin{vmatrix} x & y \\ 3 & 4 \\ 5 & -2 \\ x & y \end{vmatrix} = 10 \quad \Rightarrow \left|\frac{1}{2}\{3y + 20 - 2x - (4x - 6 + 5y)\}\right| = 10$

$\Rightarrow -2y - 6x + 26 = \mp 20$

$\Rightarrow -2y - 6x = -6 \quad and \quad -2y - 6x = -46$

$\Rightarrow y + 3x = 3 \quad and \quad y + 3x = 23$

$\Rightarrow y = 3 - 3x \quad and \quad y = 23 - 3x$ .....(2)

Sub. (2) in (1)

$\Rightarrow x = 3(3 - 3x) + 1 \quad and \quad x = 3(23 - 3x) + 1$

$\Rightarrow 10x = 10 \quad and \quad 10x = 70$

$\Rightarrow x = 1 \quad and \quad x = 7$

$\Rightarrow y = 0$ and y=2 from (2)

$\therefore$ The point P(1 , 0) or P(7 , 2)

Home Work : Remaining questions from the exercise.