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.

FAMILIES OF LINES

- Equation of the family member which passes through the intersection of the lines $l_1 \ and \ l_2 \ \ is \ l_1 + kl_2 = 0.$ Where is the parameter which can be calculated by applying the condition.
- Any line which is parallel to the line $ax + by + c = 0 \ \ is \ \ ax + by + k = 0.$ Where is the parameter which can be calculated by applying the condition.
- Any line which is perpendicular to the line $ax + by + c = 0 \ \ is \ \ bx - ay + k = 0.$ Where is the parameter which can be calculated by applying the condition.

**** For explanation of above notes watch the video tutorial.*

Exercise 11.8

2. Equation of the required line $4x - 3y + 7 + k(2x + 3y + 5) = 0$

Since the line passes through the point (- 4 , 5)

$$\Rightarrow 4 \times -4 - 3 \times 5 + 7 + k(2 \times -4 + 3 \times 5 + 5) = 0$$

$$\Rightarrow -24 + 12k = 0 \ \ \Rightarrow k = 2$$

Required line , $4x - 3y + 7 + 2(2x + 3y + 5) = 0$

$$\Rightarrow 8x + 3y + 17 = 0$$

8. Given $(2 + k)x + (1 + k)y = 5 + 7k$

$$\Rightarrow \mathbf{2x + y - 5 + k(x + y - 7) = 0}$$

⇒ the line passes through a fixed point for different values of k.

$$\mathbf{2x + y - 5 = 0} \ ---------(1) , \ \ \mathbf{x + y - 7 = 0} ---------(2)$$

(1)-(2) $\Rightarrow \boldsymbol{x = -2} \ \ \Rightarrow \boldsymbol{y = 9}$

The point of intersection is (-2 , 9)

Home work : Remaining questions from the exercise.