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.

GENERAL EQUATION OF A LINE

An equation of the form $Ax + By + C = 0$ is known as general form of a line.

CONVERSION OF GENERAL FORM INTO NORMAL FORM

Divide all the terms of general form with $\sqrt{A^2 + B^2}$ and then transfer constant term into other side (Make sure that constant term must be positive). Replace coefficient of x with $\cos \propto$ and coefficient of y with $\sin \propto$.

When Two Lines equations are given

Let the lines be $l_1 \equiv a_1 x + b_1 y + c_1 = 0$ and $l_2 \equiv a_2 x + b_2 y + c_2 = 0$

Case 1. If l_1 $intersects$ l_2 $\Rightarrow \dfrac{a_1}{a_2} \neq \dfrac{b_1}{b_2}$

Case 2. If l_1 $Paralell\ to$ l_2 $\Rightarrow \dfrac{a_1}{a_2} = \dfrac{b_1}{b_2} \neq \dfrac{c_1}{c_2}$

Case 3. If l_1 $coincides\ with$ l_2 $\Rightarrow \dfrac{a_1}{a_2} = \dfrac{b_1}{b_2} = \dfrac{c_1}{c_2}$

**** For the explanation of above notes refer the video class.

Exercise 11.7

2 i) Slope of the parallel line = -3/5

Required equation $y - 3 = -\dfrac{3}{5}(x + 2)$

$$\Rightarrow 5y + 3x = 9 \quad ans.$$

10. Given $y + 3 = 0$

$$\Rightarrow y = 0x - 3$$

$$\Rightarrow \text{slope=0 and y intercept= -3 ans.}$$

13. i) Slope of the line= $\dfrac{2\propto - 3}{\propto + 2}$

slope of the given line= -4/3

A/Q $\quad \dfrac{2\propto - 3}{\propto + 2} \times \dfrac{-4}{3} = -1$

$\Rightarrow -8 \propto +12 = -3 \propto -6 \qquad \Rightarrow \propto = 18/5$ ans.

17. slope of the given line=2/3

Slope of the perpendicular line= -3/2

Point on the line (-4 , 0)

Equation of line , $y - 0 = -\frac{3}{2}(x + 4)$

$\Rightarrow 2y + 3x = -12 \quad ans$

HOME WORK : Remaining questions from the exercise upto question number 21.