**Pair of Straight Lines**

1. Homogenous Quadratic Equation () always represents a pair of straight lines, real or imaginary, through the origin.

Homogenous – total power of variables in each term is equal

two lines are real and different

two lines are real and same

two lines are imaginary

Homogenous equations of -th degree - lines through origin

2. Angle between the lines represented by

Proof:

Let and be the two straight lines represented by the equation.

Let be the angle between the lines.

If , .

If , .

3. The equation of the bisectors of the angle between the lines represented by

4. Find the condition that the general equation of second degree may represent a pair of straight lines.