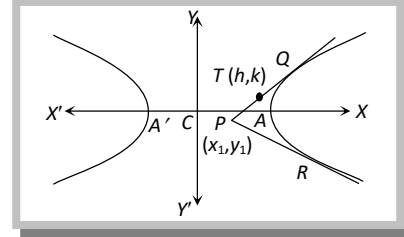


Equation of Pair of Tangents.

If $P(x_1, y_1)$ be any point outside the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ then a pair of tangents PQ, PR can be drawn to it from P .

The equation of pair of tangents PQ and PR is $SS_1 = T^2$

where, $S = \frac{x^2}{a^2} - \frac{y^2}{b^2} - 1$, $S_1 = \frac{x_1^2}{a^2} - \frac{y_1^2}{b^2} - 1$, $T = \frac{xx_1}{a^2} - \frac{yy_1}{b^2} - 1$



Director circle: The director circle is the locus of points from which perpendicular tangents are

drawn to the given hyperbola. The equation of the director circle of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is

$$x^2 + y^2 = a^2 - b^2$$

