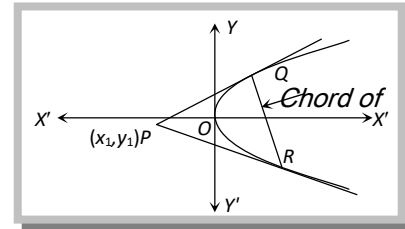# Equation of the Chord of contact of Tangents to a Parabola.

Let PQ and PR be tangents to the parabola $y^2 = 4ax$ drawn from any external point $P(x_1, y_1)$
then QR is called the 'Chord of contact' of the parabola $y^2 = 4ax$.

The chord of contact of tangents drawn from a point (x_1, y_1) to the parabola
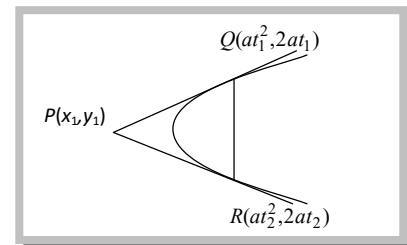
$y^2 = 4ax$ is $yy_1 = 2a(x + x_1)$

The equation is same as equation of the tangents at the point (x_1, y_1).

Note: The chord of contact joining the point of contact of two perpendicular tangents always passes through focus.

If tangents are drawn from the point (x_1, y_1) to the parabola $y^2 = 4ax$, then the

length of their chord of contact is $\dfrac{1}{|a|}\sqrt{(y_1^2 - 4ax_1)(y_1^2 + 4a^2)}$

The area of the triangle formed by the tangents drawn from (x_1, y_1) to $y^2 = 4ax$

and their chord of contact is $\dfrac{(y_1^2 - 4ax_1)^{3/2}}{2a}$.