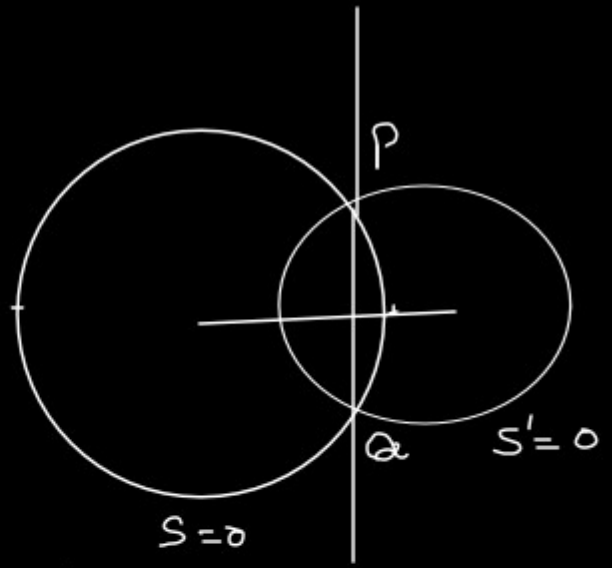
3. If given two circles are cutting each other then radical axis is their common chord.



Proof : Let the Circles $S=0$, $S'=0$

intrect at $P(x_1,y_1)$ and $Q(x_2,y_2)$

As $P(x_1,y_1)$ lies on $S=0$ & $S'=0$

$\Rightarrow S_{11}=0$ & $S'_{11}=0$

$\Rightarrow S_{11}-S'_{11}=0$

It is very clear that $P(x_1,y_1)$ lies on $S-S'=0$

Illy $Q(x_2,y_2)$ lies on $S=0$ & $S'=0$

$\Rightarrow S_{22}=0$ & $S'_{22}=0$

$\Rightarrow S_{22}-S'_{22}=0$

It shows $Q(x_2,y_2)$ also lies on $S-S'=0$

P & Q points both lie on $S-S'=0$

$\therefore \overline{PQ}$ is a common chord which is the R.A. //