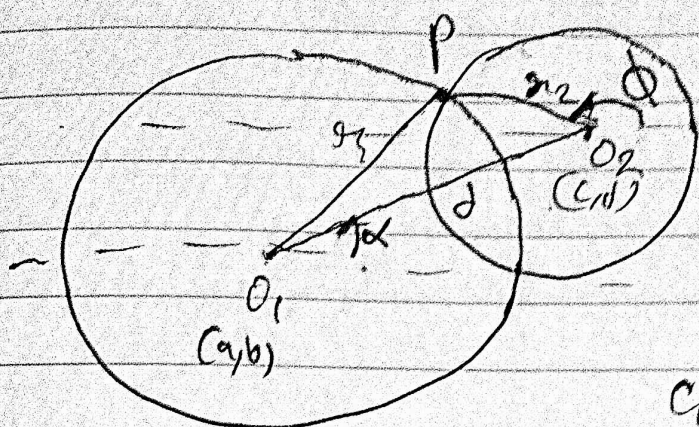


### Formulae / Concepts



$$r_1 > r_2$$

$$O_1O_2 = d$$

$\rightarrow x$

2 circles centres  $\Rightarrow (a, b) \quad | \quad (c, d)$   
 Radius  $\Rightarrow r_1 \quad | \quad r_2$

Formulae is

$$\cos(\phi - \alpha) = \frac{r_1^2 - (r_2^2 + d^2)}{2r_2d}$$

where  $\alpha = \angle$  of  $O_1O_2$  with  $x$  axis  $[\cos \alpha = \frac{c-a}{d}]$   $\star$   
 $\phi = \angle$  of  $PO_2$  with  $x$  axis.  $\phi$