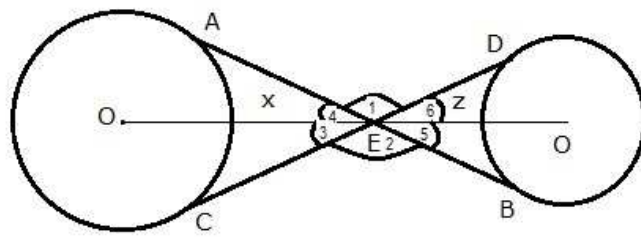


(10)



given - AB and CD are common tangents  
to prove - Points O, E, O' are collinear

proof  $\angle 1 = \angle 2$  (vertically opp.  $\angle$ s)

$$\angle 3 = \angle 4$$

$$\angle 5 = \angle 6$$

[tangents are equally inclined to line joining centre of  $\odot$  to external point]

NCERT Exemplar Solutions by Dev Anoop (Bathinda)

$$\angle 1 + \angle 2 + \angle 3 + \angle 4 + \angle 5 + \angle 6 = 360^\circ \text{ (sum of angles around a point)}$$

$$\angle 1 + \angle 1 + \angle 4 + \angle 4 + \angle 6 + \angle 6 = 360^\circ \quad \left[ \begin{array}{l} \angle 1 = \angle 2, \angle 3 = \angle 4, \\ \angle 5 = \angle 6 \end{array} \right]$$

$$\Rightarrow 2(\angle 1 + \angle 4 + \angle 6) = 360^\circ$$

$$\Rightarrow \angle 1 + \angle 4 + \angle 6 = 180^\circ$$

$$\Rightarrow \angle LOEO' = 180^\circ$$

$\therefore$  Points O, E, O' are collinear