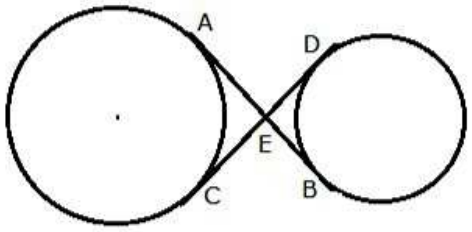
ex 9.3, exemplar x

(7)



to prove $AB = CD$

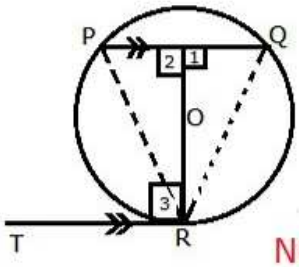
proof $EA = EC \cdots (1)$ [tangents from same external point]
$EB = ED \cdots (11)$

$(1) + (11)$

$EA + EB = EC + ED$

$\Rightarrow AB = CD$

(8)



to prove R bisects $\overset{\frown}{PRQ}$

const - join PR and QR

proof

$\angle TRP = \angle Q$ (angles in alternate segment)

but $\angle TRP = \angle P$ (alternate angles, $\because PQ \parallel TR$)

$\therefore \angle P = \angle Q$

$RQ = RP$ [converse of isosceles $\triangle$ prop.]

$\Rightarrow \overset{\frown}{RQ} = \overset{\frown}{RP}$