

⑦  
cont.

$$\angle 2 = \angle 3 = 75^\circ \quad (\text{alternate interior angles})$$
$$\angle 1 = \angle 4 = 75^\circ \quad (\text{angles in alternate segment})$$

NCERT Exemplar Solutions by Dev Anoop (Bathinda)

In  $\triangle RQS$

$$\angle RQS + \angle 3 + \angle 4 = 180^\circ \quad (\text{angle sum prop. of } \triangle)$$

$$\angle RQS + 75 + 75 = 180^\circ$$

$$\Rightarrow \angle RQS = 180^\circ - 150^\circ$$
$$= 30^\circ$$

NCERT Exemplar Solutions by Dev Anoop (Bathinda)

⑧

given - In fig.  $\angle BAC = 30^\circ$

to prove -  $BC = BD$

proof  $\angle 1 = \angle BAC = 30^\circ$  (angles in alternate segment)

$\angle 2 = 90^\circ$  (angle in semi  $\odot$ )

$\angle 4 = \angle 2 + \angle BAC$  (exterior angle prop of  $\triangle$ )

$$= 90^\circ + 30^\circ$$

$$= 120^\circ$$

In  $\triangle BDC$   
 $\angle 1 + \angle 4 + \angle BDC = 180^\circ$  (angle sum prop. of  $\triangle$ )

$$30^\circ + 120^\circ + \angle BDC = 180^\circ$$

$$\Rightarrow \angle BDC = 180^\circ - 150^\circ$$
$$= 30^\circ$$

$\therefore \angle 1 = \angle BDC$  (each  $30^\circ$ )

$\Rightarrow BD = BC$  (converse of isos.  $\triangle$  prop.)

