



Exercise 5A

Question 36:

In $\triangle ABC$,

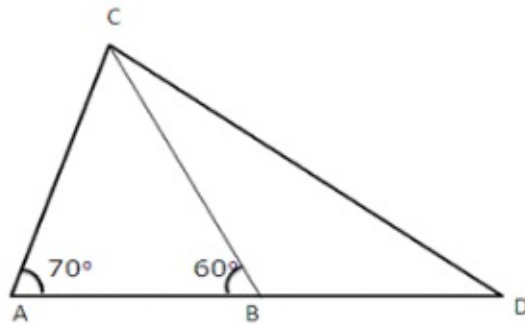
$$\angle A = \angle B = 45^\circ$$

$$\begin{aligned}\text{So, } \angle C &= 180^\circ - \angle A - \angle B \\ &= 180^\circ - 45^\circ - 45^\circ \\ &= 180^\circ - 90^\circ = 90^\circ\end{aligned}$$

Thus we find that $\angle C$ is the greatest angle of $\triangle ABC$.

So, AB is the longest side which is opposite to $\angle C$.

Question 37:



In $\triangle ABC$,

$$\angle A + \angle B + \angle C = 180^\circ$$

$$\Rightarrow 70^\circ + 60^\circ + \angle C = 180^\circ$$

$$\Rightarrow 130^\circ + \angle C = 180^\circ$$

$$\Rightarrow \angle C = 180^\circ - 130^\circ = 50^\circ$$

Now in $\triangle BCD$ we have,

$$\angle CBD = \angle DAC + \angle ACB \quad [\because \angle CBD \text{ is the exterior angle of } \triangle ABC]$$

$$= 70^\circ + 50^\circ = 120^\circ$$

Since $BC = BD$ [Given]

So, $\angle BCD = \angle BDC$

$$\begin{aligned} \therefore \angle BCD + \angle BDC &= 180^\circ - \angle CBD \\ &= 180^\circ - 120^\circ = 60^\circ \end{aligned}$$

$$\Rightarrow 2\angle BCD = 60^\circ$$

$$\Rightarrow \angle BCD = \angle BDC = 30^\circ$$

Now in $\triangle ACD$ we have

$$\angle A = 70^\circ, \angle D = 30^\circ$$

and $\angle ACD = \angle ACB + \angle BCD$

$$= 50^\circ + 30^\circ = 80^\circ$$

$\therefore \angle ACD$ is the greatest angle.

So the side opposite to $\angle ACD$, that is AD , is the longest side of $\triangle ACD$

$$\therefore AD > CD$$

(ii) Since $\angle BDC$ is the smallest angle, the side opposite to $\angle BDC$, that is AC , is the shortest side of $\triangle ACD$

$$\therefore AD > AC.$$

***** END *****