Exercise 5A

Question 36:

In ΔABC,

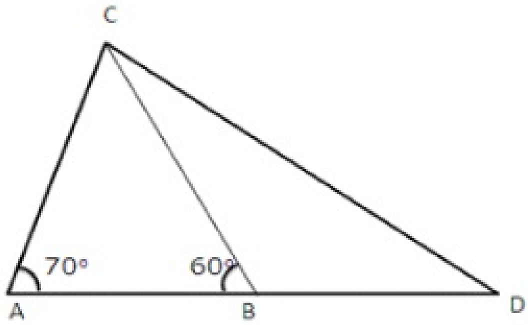
$$\angle A = \angle B = 45^\circ$$

So, $$\angle C = 180^\circ - \angle A - \angle B$$
$$= 180^\circ - 45^\circ - 45^\circ$$
$$= 180^\circ - 90^\circ = 90^\circ$$

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

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

Question 37:



In ΔABC,

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

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

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

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

Now in ΔBCD we have,

$\angle CBD = \angle DAC + \angle ACB$ [$\because$ $\angle CBD$ is the exterior angle of $\angle ABC$]

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

Since $BC = BD$ [Given]

So, $\angle BCD = \angle BDC$

$\therefore \quad \angle BCD + \angle BDC = 180^\circ - \angle CBD$

$= 180^\circ - 120^\circ = 60^\circ$

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

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

Now in ΔACD we have

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

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

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

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

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

$\therefore \quad AD > CD$

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

$\therefore \quad AD > AC.$

*********** END **********