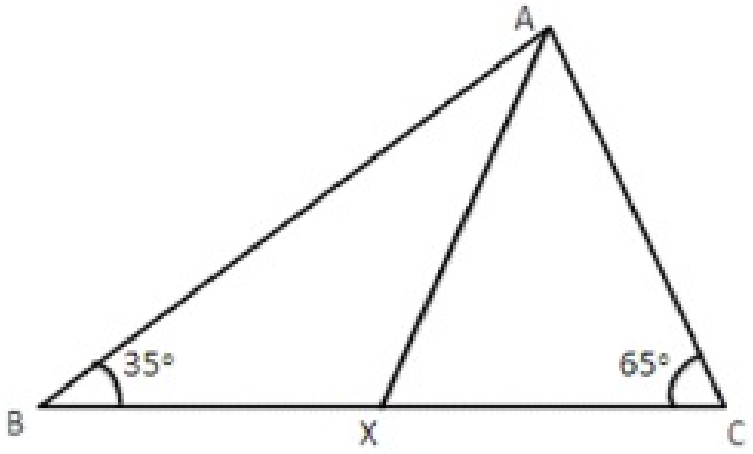
Exercise 5A

Question 38:



In ΔABC,

$$\angle A = 180^\circ - \angle B - \angle C$$
$$= 180^\circ - 35^\circ - 65^\circ$$
$$= 180^\circ - 100^\circ = 80^\circ$$

$$\therefore \quad \angle BAX = \frac{1}{2}\angle A$$
$$= \frac{1}{2} \times 80^\circ = 40^\circ$$

Now in ΔABX,

$$\angle B = 35^\circ$$
$$\angle BAX = 40^\circ$$

and $\quad \angle BXA = 180^\circ - 35^\circ - 40^\circ$
$$= 180^\circ - 75^\circ = 105^\circ$$

So, in ΔABX,

$\angle B$ is smallest,so the side opposite to $\angle B$, that is AX, is smallest

So $\quad AX < BX$ ....(i)

Now consider ΔAXC

$$\angle CAX = \frac{1}{2} \times \angle A$$
$$= \frac{1}{2} \times 80^\circ = 40^\circ$$

$\angle AXC = 180^\circ - 40^\circ - 65^\circ$

$\angle AXC = 180° - 40° - 65°$

$= 180° - 105° = 75°$

Therefore, in ΔAXC, we have,

$\angle CAX = 40°, \angle C = 65°$ and $\angle AXC = 75°$

$\therefore \angle CAX$ is smallest in ΔAXC

So the side opposite to $\angle CAX$ is shortest.

$\Rightarrow CX$ is shortest

$\Rightarrow CX < AX$ ....(ii)

From (i) and (ii), we get

$BX > AX > CX$

This is the required descending order.

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