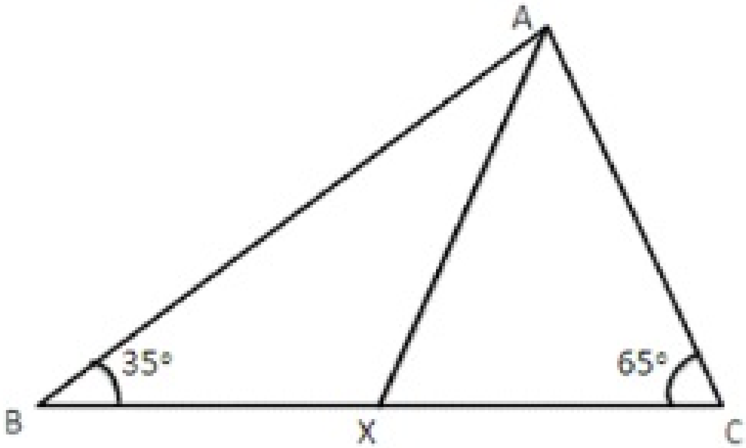
Exercise 5A

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

So, in ΔABX,

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

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

Now consider ΔAXC

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

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

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

$= 180^\circ - 105^\circ = 75^\circ$

Therefore, in ΔAXC, we have,

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

$\therefore \angle CAX$ is smallest in ΔAXC

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

$\Rightarrow CX$ is shortest

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

From (i) and (ii), we get

$BX > AX > CX$

This is the required descending order.

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