Exercise 4D

Question 20:
Given : A ΔABC in which BC, CA and AB are produced to D, E and F respectively.

To prove : Exterior $\angle$DCA + Exterior $\angle$BAE + Exterior $\angle$FBD = 360^{o}

Proof : Exterior $\angle$DCA = $\angle A + \angle B$ ....(i)

Exterior $\angle$FAE = $\angle B + \angle C$ ....(ii)

Exterior $\angle$FBD = $\angle A + \angle C$ ....(iii)

Adding (i), (ii) and (iii), we get,

Ext. $\angle$DCA + Ext. $\angle$FAE + Ext. $\angle$FBD

$= \angle A + \angle B + \angle B + \angle C + \angle A + \angle C$

$= 2\angle A + 2\angle B + 2\angle C$

$= 2 (\angle A + \angle B + \angle C)$

$= 2 \times 180^{o}$

[Since, in triangle the sum of all three angle is 180^{o}]

$= 360^{o}$

Hence, proved.

Question 21:
In ΔACE, we have,

$\angle A + \angle C + \angle E = 180^{o}$ ....(i)

In ΔBDF, we have,

$\angle B + \angle D + \angle F = 180^{o}$ ....(ii)

Adding both sides of (i) and (ii), we get,

$\angle A + \angle C + \angle E + \angle B + \angle D + \angle F = 180^{o} + 180^{o}$

$\Rightarrow \angle A + \angle B + \angle C + \angle D + \angle E + \angle F = 360^{o}$.

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