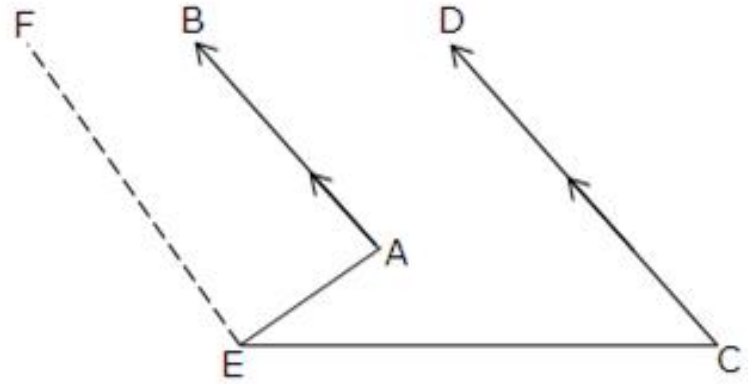
Exercise 4C

Question 7:
Given: AB || CD
To Prove: ∠BAE - ∠DCE = ∠AEC



Construction : Through E draw EF || AB
Proof : Since EF || AB, AE is a transversal.
So, $\angle BAE + \angle AEF = 180^{O}$ ....(i)
[sum of consecutive interior angles is 180^{o}]
As EF || AB and AB || CD [Given]
So, EF || CD and EC is a transversal.
So, $\angle FEC + \angle DCE = 180^{O}$ ....(ii)
[sum of consecutive interior angles is 180^{o}]
From (i) and (ii) we get,
$\angle BAE + \angle AEF = \angle FEC + \angle DCE$
$\Rightarrow \angle BAE - \angle DCE = \angle FEC - \angle AEF = \angle AEC$ [Proved]

Question 8:
Since AB || CD and BC is a transversal.
So, $\angle BCD = \angle ABC = x^{O}$ [Alternate angles]
As BC || ED and CD is a transversal.
$\angle BCD + \angle EDC = 180^{O}$
$\Rightarrow \angle BCD + 75^{O} = 180^{O}$
$\Rightarrow \angle BCD = 180^{O} - 75^{O} = 105^{O}$
$\angle ABC = 105^{O}$ [since $\angle BCD = \angle ABC$]
$\therefore x^{O} = \angle ABC = 105^{O}$
Hence, x = 105.

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