Exercise 6.3

Question 5:

In Fig. 6.12, BA || ED and BC || EF. Show that ∠ABC = ∠DEF.
[Hint: Produce DE to intersect BC at P (say)].

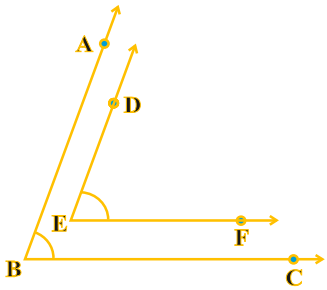


Fig. 6.12

Answer 5:

Given:

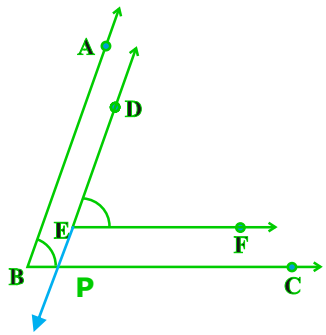
BA ∥ ED, and BC ∥ EF.

To prove:

$\angle ABC = \angle DEF$.

Construction:

Produce DE which intersect BC at P.



Proof:

In figure,

$BA \parallel ED \Rightarrow BA \parallel DP$

$\therefore \quad \angle ABP = \angle EPC$ [corresponding angles]

$\Rightarrow$ $\angle ABC = \angle EPC$ ... (i)

Again, BC ∥ EF ⇒ PC ∥ EF

$\therefore$ $\angle DEF = \angle EPC$ ... (ii) [corresponding angles]

From equations (i) and (ii), we get

$\angle ABC = \angle DEF$

Hence proved.