

# Mathematics

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(Chapter – 6) (Lines and Angles)(Exemplar Problems)

(Class – IX)

## Exercise 6.4

### Question 3:

A transversal intersects two parallel lines. Prove that the bisectors of any pair of corresponding angles so formed are parallel

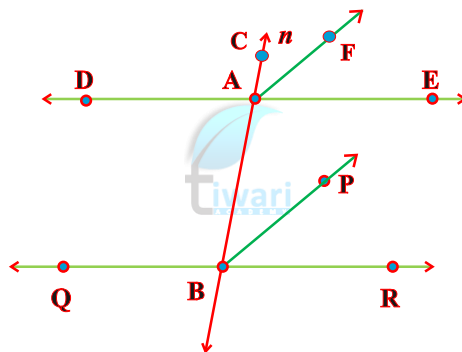
### Answer 3:

Given:

Two lines DE and QR are parallel and intersected by transversal  $n$  at A and B respectively. Also, BP and AF are the bisectors of angles  $\angle ABR$  and  $\angle CAE$  respectively.

To prove:

$EP \parallel FQ$



Proof:

Given,  $DE \parallel QR$

$$\Rightarrow \angle CAE = \angle ABR$$

[Corresponding angles]

$$\Rightarrow \frac{1}{2} \angle CAE = \frac{1}{2} \angle ABR$$

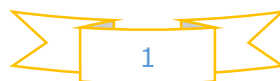
[Dividing both sides by 2]

$$\Rightarrow \angle CAF = \angle ABP$$

[ $\because$  BP and AF are the bisectors of angles  $\angle ABR$  and  $\angle CAE$  respectively]

As these are the corresponding angles on the transversal line  $n$  and are equal.

Hence,  $EP \parallel FQ$ .



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