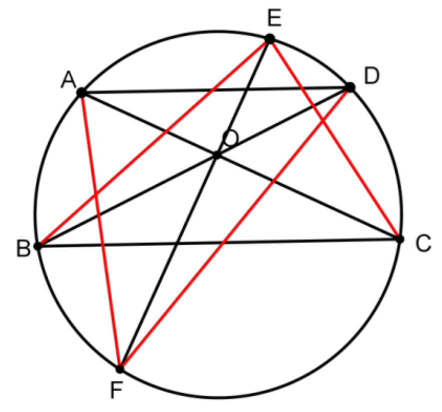
Cash Award Question for Mar-2026

In the picture, AD & BC are two parallel chords. AC & BD meet at O. E is a random point on the minor arc AD. EO is joined and produced to meet the circle at F.



Prove : BE×AF = CE×DF

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Question framed by
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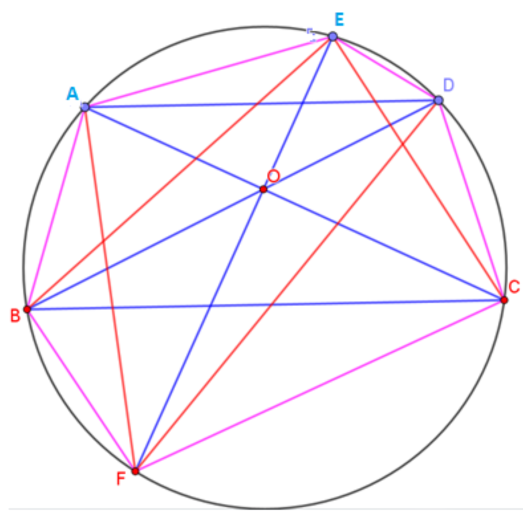
Author's Solution Mar-2026

Given :

In the picture, AD & BC are two parallel chords. AC & BD meet at O. E is a random point on the minor arc AD. EO is joined and produced to meet the circle at F.



To Prove : BE×AF = CE×DF

Construction :

Join AB, BF, FC, CD, DF, FA

Since AD ∥ BC (given),

ABCD is an isosceles trapezium.

AB = CD -------------------------------------- (1)

In ΔEBC, the extended cevians EF, BD & CA are concurrent at O.

∴ as per the Concurrent Chords Theorem, **(Please refer to the Author's solution for Jan 26 posted on 15.01.2026 on this website)**

$\frac{BF}{FC} \times \frac{CD}{DE} \times \frac{EA}{AB} = 1$ ---------------------------(2)

(1)&(2)→

BF×EA = DE×FC --------------------------- (3)

ABFE & DCFE are cyclic quadrilaterals and a per Ptolomy's Theorem,

AB×EF + AE×BF = AF×BC -------------- (4)

& DC×EF + DE×CF = CE×DF ------------ (5)

(1),(3),(4)&(5)→

AF×BC = DF×CE ------------- **Proved**

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