Problem 1.41 (Russian Olympiad 1996)
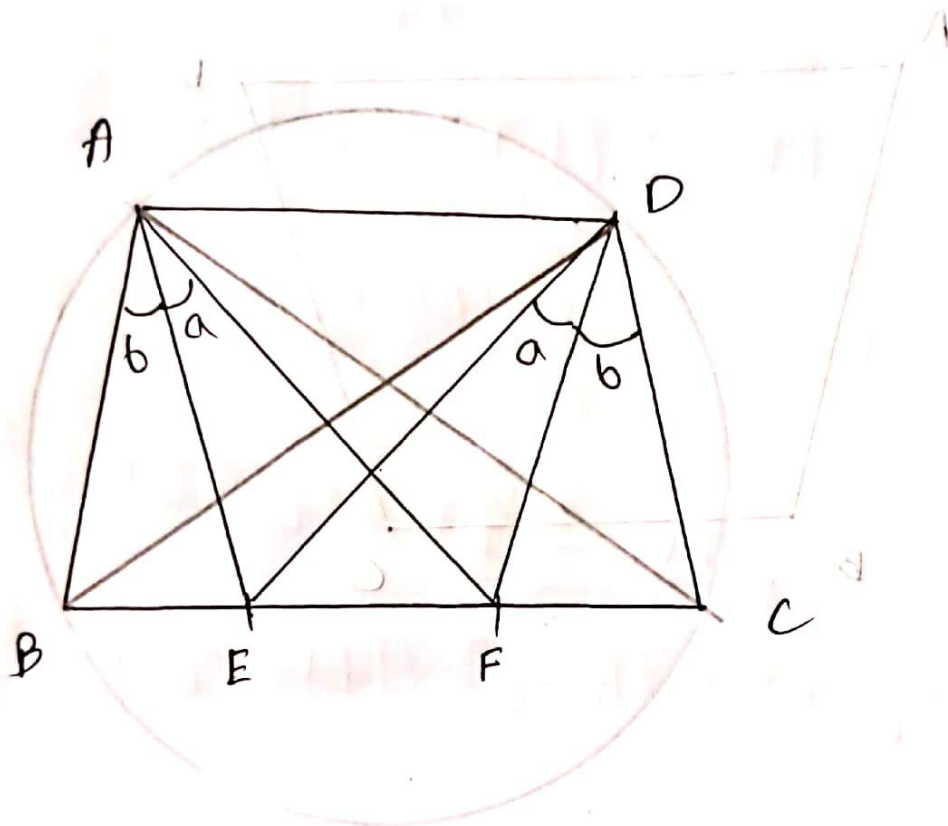
$\angle EAF = \angle EDF = a$

So, AEFD q^a quadrilateral is cyclic.

$180 - \angle ABC = \angle ADC$

$180 - (180 - b - \angle AEB) = \angle ADE + b + a$

$b + \angle AEB = \angle ADF + b$ $\left[\angle ADF = \angle ADE + \angle EDF / a \right.$

$\left. \angle EDF \neq \angle AEB \text{ cyclic quadrilateral} \atop \text{properly} \right]$

upside down mathod

$b + \angle AEB/x = \angle ADF/x+b$

$\therefore$ ABCD quadrilateral is cyclic

$\therefore \angle BAC = \angle BDC$

$\therefore \angle BAC - b - a = \angle BDC - b - a$

$\therefore \angle FAC = \angle EDB$ □