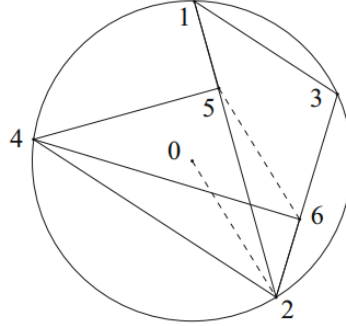
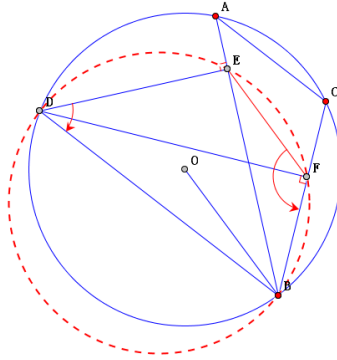


**Example 4.6** Let **1, 2, 3, 4** be points on a circle of center **0** such that **13**  $\parallel$  **24**. Let **5, 6** be feet drawn from **4** to lines **12, 23** respectively. Then **02**  $\parallel$  **56**.



To Prove:  $EF \parallel OB$

- $\angle[FE, OB]$
- $= \angle[EFB] + \angle[FBO] \text{ (addition)}$
- $\angle[EFB] = \angle[EDB] \text{ (rule 8)}$
- $= \angle[FBO] + \angle[EDB]$
- $\angle[FBO] = \angle[OBC] \text{ (rule 1)}$
- $= \angle[EDB] - \angle[OBC]$
- $\angle[EDB] = \angle[DBA] + \angle[1] \text{ (rule 6)}$
- $= \angle[DBA] - \angle[OBC] + \angle[1]$
- $\angle[DBA] = \angle[DOB] + \angle[BCA] \text{ (rule 9)}$
- $= \angle[DOB] - \angle[OBC] - \angle[BCA] + \angle[1]$
- $\angle[OBC] = \angle[OB, CA] - \angle[BCA] \text{ (addition)}$
- $= \angle[DOB] - \angle[OB, CA] + \angle[1]$
- $\angle[DOB] = \angle[BCA] + \angle[CAB] \text{ (rule 10)}$
- $= \angle[OB, CA] + \angle[BCA] - \angle[CAB] + \angle[1]$
- $\angle[OB, CA] = \angle[OBA] - \angle[CAB] \text{ (addition)}$
- $= \angle[OBA] + \angle[BCA] + \angle[1]$
- $\angle[OBA] = \angle[OAB] \text{ (rule 7)}$
- $= \angle[OAB] + \angle[BCA] + \angle[1]$
- $\angle[OAB] = \angle[BCA] + \angle[1] \text{ (rule 16)}$
- $= \angle[0] \text{ Q.E.D.}$



**Example 139** : As shown in the figure, in the quadrilateral  $ADBC$  inscribed in the circle  $O$ ,  $AC \parallel DB$ ,  $DE \perp AC$ ,  $DF \perp BC$ , to prove:  $OB \parallel EF$ .

$$\frac{D-E}{O-B} \frac{E-F}{F-E} \frac{D-B}{A-C} \left( \frac{B-O}{B-A} \frac{C-A}{B-C} \right) \frac{A-B}{D-E} = 1 \quad ,$$