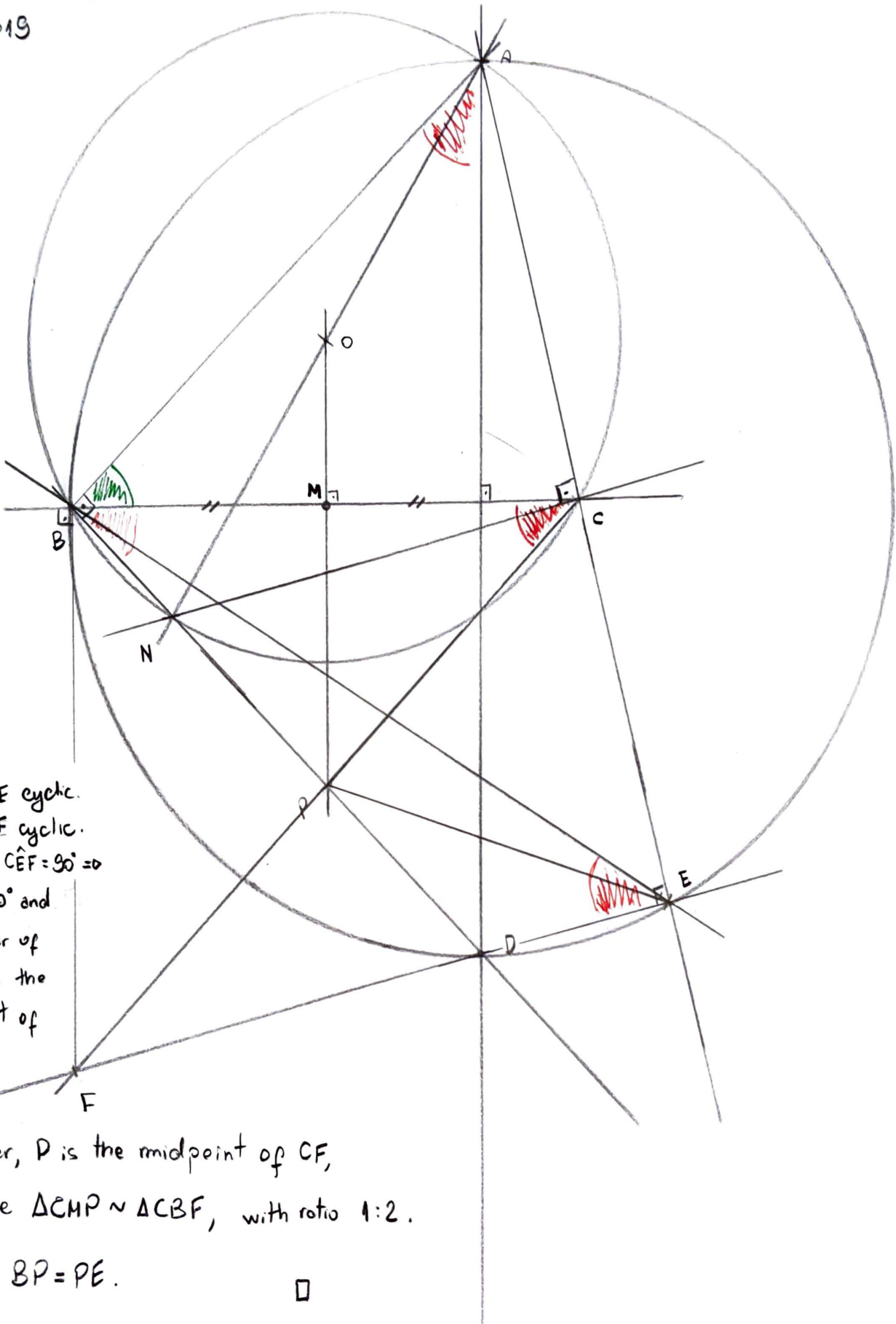


Problem 1
British MO 2
2019



- ABDE cyclic.
 - BCEF cyclic.
- But, $\angle CEF = 90^\circ \Rightarrow$
 $\angle CBF = 90^\circ$ and
the center of
BCEF is the
midpoint of
CF.

However, P is the midpoint of CF,
because $\triangle CMP \sim \triangle CBF$, with ratio 1:2.

Thus, $BP = PE$.

□