# Proof Without Words: Trisection of a Parallelogram's Diagonal

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## 1 Assumptions

Given a parallelogram $ABCD$, $E$ and $F$ are the midpoints of $\overline{AB}$ and $\overline{CD}$. Assume that $H$ and $I$ are the points of intersection of diagonal $\overline{BD}$ with lines $\overleftrightarrow{EC}$ and $\overleftrightarrow{AF}$ (see Figure 1).
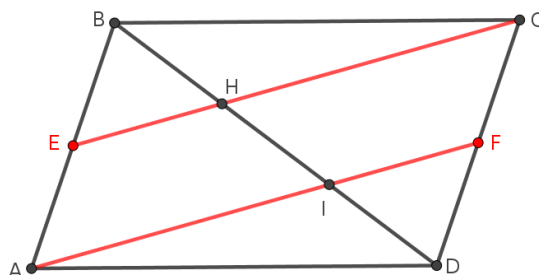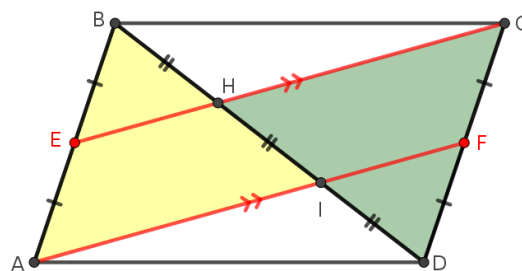


**Fig. 1**

## 2 Proof

Prove that $BH = HI = ID$.



**Fig. 2**

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