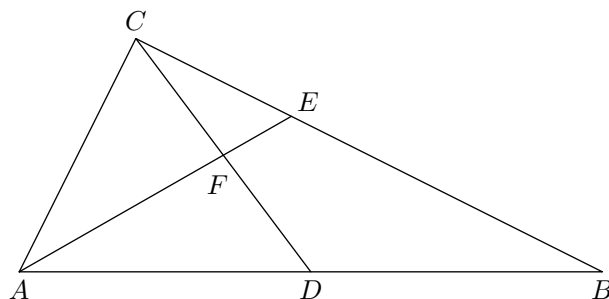Due **Tuesday** April 10, at the start of the recitation.

Explain your reasoning. A correct answer poorly explained will not get full marks.

·  5

1. In the triangle $\triangle ABC$ below, the $D$ is the midpoint of $\overline{AB}$ and $E$ is one third of the way from $C$ to $B$. Use vectors to prove that $F$ is the midpoint of $\overline{CD}$.



HINT: Suppose $G$ is the midpoint of $\overline{CD}$ and show $\overrightarrow{AG}$ and $\overrightarrow{AE}$ have the same direction (are positive scalar multiples of one another).