# Dr Oliver Mathematics
# Vectors: Part 1

1. The diagram shows triangle $OCF$.

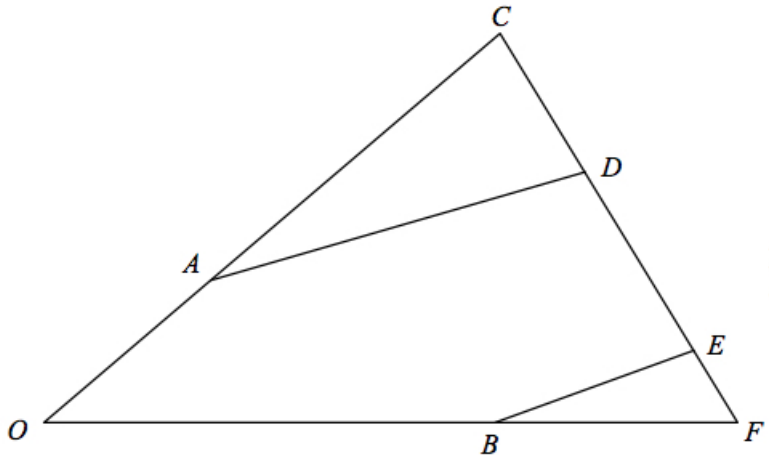


Diagram **NOT** accurately drawn

$\overrightarrow{OA} = \mathbf{a}$, $\overrightarrow{OC} = 3\mathbf{a}$, $\overrightarrow{OB} = 2\mathbf{b}$, and $\overrightarrow{OF} = 3\mathbf{b}$.

(a) Express $\overrightarrow{CF}$ in terms of $\mathbf{a}$ and $\mathbf{b}$. (1)

Given that $\overrightarrow{CD} = \frac{1}{3}\overrightarrow{CF}$ and that $\overrightarrow{CE} = \frac{5}{6}\overrightarrow{CF}$,

(b) use vectors to prove that $AD$ and $BE$ are parallel. (5)