**20** *CDEF* is a quadrilateral.
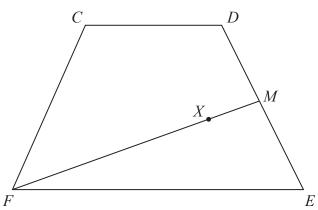


$\overrightarrow{CD} = \mathbf{a}$, $\overrightarrow{DE} = \mathbf{b}$ and $\overrightarrow{FC} = \mathbf{a} - \mathbf{b}$.

(a) Express $\overrightarrow{FE}$ in terms of $\mathbf{a}$ and/or $\mathbf{b}$.
Give your answer in its simplest form.

..........................................
**(2)**

*M* is the midpoint of *DE*.
*X* is the point on *FM* such that $FX : XM = n : 1$
*CXE* is a straight line.

(b) Work out the value of *n*.

$n = $ ..........................................
**(4)**

**(Total for Question 20 is 6 marks)**

**TOTAL FOR PAPER IS 80 MARKS**