22 (a)	$\overrightarrow{ON} = \mathbf{b} + \frac{2}{5}(\mathbf{a} - \mathbf{b})$ oe or $\overrightarrow{ON} = \mathbf{a} + \frac{3}{5}(\mathbf{b} - \mathbf{a})$ oe		2	M1	
	Correct answer scores full marks (unless from obvious incorrect working)	$\frac{2}{5}\mathbf{a} + \frac{3}{5}\mathbf{b}$		A1	oe eg $\frac{1}{5}(2\mathbf{a} + 3\mathbf{b})$ but must be one term in **a** and one in **b**
(b)	$\overrightarrow{ME} = \frac{8}{5}\mathbf{a} - \frac{4}{5}\mathbf{b}$ $\overrightarrow{NE} = \frac{6}{5}\mathbf{a} - \frac{3}{5}\mathbf{b}$ *(all oe but simplified)* $\overrightarrow{MN} = \frac{2}{5}\mathbf{a} - \frac{1}{5}\mathbf{b}$		3	M1ft	for one of $\overrightarrow{ME}$, $\overrightarrow{NE}$ or $\overrightarrow{MN}$ or one of $\overrightarrow{EM}$, $\overrightarrow{EN}$ or $\overrightarrow{NM}$ ft (dep on M1 in (a)) their expression for $\overrightarrow{ON}$ for this mark only [$\overrightarrow{ME} = \overrightarrow{ON} + \frac{6}{5}\mathbf{a} - \frac{7}{5}\mathbf{b}$ $\overrightarrow{MN} = \overrightarrow{ON} - \frac{4}{5}\mathbf{b}, \overrightarrow{NE} = -\overrightarrow{ON} + \frac{11}{3}\mathbf{a}$]
	$\overrightarrow{ME} = \frac{8}{5}\mathbf{a} - \frac{4}{5}\mathbf{b}$ $\overrightarrow{NE} = \frac{6}{5}\mathbf{a} - \frac{3}{5}\mathbf{b}$ *(all oe but simplified)* $\overrightarrow{MN} = \frac{2}{5}\mathbf{a} - \frac{1}{5}\mathbf{b}$			M1	for two of $\overrightarrow{ME}$, $\overrightarrow{NE}$ or $\overrightarrow{MN}$ or two of $\overrightarrow{EM}$, $\overrightarrow{EN}$ or $\overrightarrow{NM}$ **must be correct**
	Evidence of a vector method needed	shown		A1	eg $\overrightarrow{ME} = 4 \times \overrightarrow{MN}$ **or** $\overrightarrow{NE} = 3 \times \overrightarrow{MN}$ **or** $\overrightarrow{ME} = \frac{4}{3} \times \overrightarrow{NE}$ **or** showing they are multiples of the same vector eg $\overrightarrow{MN} = \frac{1}{5}(2\mathbf{a} - \mathbf{b})$ and $\overrightarrow{NE} = \frac{3}{5}(2\mathbf{a} - \mathbf{b})$
					Total 5 marks