Start: $A=(4,-3)$ $B=(5,\ -1)$ $C=(-1,-2)$	$\overrightarrow{AB}=$	$\begin{pmatrix}-1\\-2\end{pmatrix}$	*magnitude of* $\overrightarrow{AB}=$
$\begin{pmatrix}1\\2\end{pmatrix}$	$\overrightarrow{BC}=$	$\sqrt{5}$	*magnitude of* $\overrightarrow{AC}=$
$\begin{pmatrix}-6\\-1\end{pmatrix}$	$\overrightarrow{AC}=$	$\sqrt{26}$	*magnitude of* $\overrightarrow{BC}=$
$\begin{pmatrix}-5\\1\end{pmatrix}$	$\overrightarrow{CA}=$	$\sqrt{37}$	*A vector perpendicular to* $\overrightarrow{AB}=$
$\begin{pmatrix}5\\-1\end{pmatrix}$	$\overrightarrow{CB}=$	$\begin{pmatrix}-2\\1\end{pmatrix}$	*A vector perpendicular to* $\overrightarrow{BC}=$

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$\begin{pmatrix} 1 \\ 5 \end{pmatrix}$	*the cosine of the acute angle between AB and BC =*	$\begin{pmatrix} 2 \\ -1.5 \end{pmatrix}$	*The position vector of the point which divides the line BC in the ratio* $1:2$ *=*
$\frac{8}{\sqrt{185}}$	*the cosine of the acute angle between AC and BC =*	$\begin{pmatrix} 3 \\ -\frac{4}{3} \end{pmatrix}$	*The position vector of the point which divides the line AB in the ratio* $2:1$ *=*
$\frac{29}{\sqrt{962}}$	*the cosine of the acute angle between AB and AC =*	$\begin{pmatrix} \frac{14}{3} \\ -\frac{5}{3} \end{pmatrix}$	*The position vector of the point which divides the line BC in the ratio* $2:3$ *=*
$\frac{3}{\sqrt{130}}$	*The position vector of the mid − point of the line AB =*	$\begin{pmatrix} \frac{13}{5} \\ -\frac{7}{5} \end{pmatrix}$	*The position vector of the point which divides the line AC in the ratio* $1:2$ *=*
$\begin{pmatrix} 4.5 \\ -2 \end{pmatrix}$	*The position vector of the mid − point of the line AC =*	$\begin{pmatrix} \frac{7}{3} \\ -\frac{8}{3} \end{pmatrix}$	*The position vector of the point which divides the line CA in the ratio* $1:3$ *=*

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