Vector Activity - Extension

Dominoes are placed end to end to form a chain. Tape or glue onto a separate piece of paper.

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

$\langle 1,\ 5 \rangle$	the cosine of the acute angle between AB and BC =	$\langle 2,\ -1.5 \rangle$	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 =	$\left\langle 3,\ -\frac{4}{3} \right\rangle$	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 =	$\left\langle \frac{14}{3},\ -\frac{5}{3} \right\rangle$	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 midpoint of the line AB =	$\left\langle \frac{13}{5},\ -\frac{7}{5} \right\rangle$	The position vector of the point which divides the line AC in the ratio 1 : 2 =
$\langle 4.5,\ -2 \rangle$	The position vector of the midpoint of the line AC =	$\left\langle \frac{7}{3},\ -\frac{8}{3} \right\rangle$	The position vector of the point which divides the line CA in the ratio 1 : 3 =
$\langle 1.5,\ -2.5 \rangle$	The position vector of the midpoint of the line BC =	$\left\langle \frac{1}{4},\ -\frac{9}{4} \right\rangle$	Finish

SOLUTION:

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