25	eg $\overrightarrow{AK}=\lambda\mathbf{a}$ $\overrightarrow{KB}=(1-\lambda)\mathbf{a}$ $\overrightarrow{CL}=-\mu\mathbf{a}$ $\overrightarrow{DL}=(1-\mu)\mathbf{a}$	eg $\overrightarrow{AK}=\frac{1}{2}\mu\mathbf{a}$ $\overrightarrow{KB}=(1-\frac{1}{2}\mu)\mathbf{a}$ $\overrightarrow{CL}=-2\lambda\mathbf{a}$ $\overrightarrow{DL}=(1-2\lambda)\mathbf{a}$	**SEE NEXT PAGE FOR MISREAD**	5	M1	for correctly using the ratio to form an expression for a vector passing through *K* or *L* could be in terms of λ or μ $\overrightarrow{AK}$ or $\overrightarrow{KA}$, $\overrightarrow{KB}$ or $\overrightarrow{BK}$, $\overrightarrow{CL}$ or $\overrightarrow{LC}$, $\overrightarrow{DL}$ or $\overrightarrow{LD}$ (may be seen as part of another expression)
	eg $\overrightarrow{KL}=-\lambda\mathbf{a}+\mathbf{b}+(1-\mu)\mathbf{a}$ or $=(1-\lambda-\mu)\mathbf{a}+\mathbf{b}$ $\overrightarrow{LM}=(\mu-1)\mathbf{a}+0.5\mathbf{b}$ $\overrightarrow{KM}=-\lambda\mathbf{a}+\mathbf{b}+0.5\mathbf{b}\left(=-\lambda\mathbf{a}+1.5\mathbf{b}\right)$	eg $\overrightarrow{KL}=\mathbf{b}+(1-\frac{3}{2}\mu)\mathbf{a}$ or $\overrightarrow{KL}=\mathbf{b}+(1-3\lambda)\mathbf{a}$ $\overrightarrow{LM}=(2\lambda-1)\mathbf{a}+\frac{1}{2}\mathbf{b}$ or $\overrightarrow{KM}=-\lambda\mathbf{a}+\frac{3}{2}\mathbf{b}$ or			M1	for finding an expression in λ and/or μ for **one of** $\overrightarrow{KL}$ (or $\overrightarrow{LK}$), $\overrightarrow{LM}$ (or $\overrightarrow{ML}$), $\overrightarrow{KM}$ (or $\overrightarrow{MK}$) [If this mark is awarded it assumes the first M1]
	Two of the above – may have used $2\lambda=\mu$ to write all in one of λ or μ May be simplified or not – so may have brackets or not				M1	for finding an expression in λ or μ for **two of** the following: $\overrightarrow{KL}$ (or $\overrightarrow{LK}$), $\overrightarrow{LM}$ (or $\overrightarrow{ML}$), or $\overrightarrow{KM}$ (or $\overrightarrow{MK}$)
	eg using $\overrightarrow{KM}=-\lambda\mathbf{a}+1.5\mathbf{b}$ and $\overrightarrow{LM}=(2\lambda-1)\mathbf{a}+\frac{1}{2}\mathbf{b}$ $\overrightarrow{LM}=x\overrightarrow{KM}$ gives $\frac{-\lambda x}{2\lambda-1}=\frac{1.5x}{0.5}\Rightarrow 3.5\lambda=1.5\Rightarrow\lambda=\frac{3}{7}$ oe		$\lambda=\frac{3}{7}$ or $\mu=\frac{6}{7}$		A1	dep on M2 for one value correct or both values but written the wrong way round $(\mu=\frac{3}{7}\ \lambda=\frac{6}{7})$
			$\lambda=\frac{3}{7}$ & $\mu=\frac{6}{7}$		A1	dep on M2 for both values
						Total 5 marks

25	eg $\overrightarrow{AK}=\left(\frac{\lambda}{\lambda+1}\right)\mathbf{a}$ $\overrightarrow{KB}=\left(\frac{1}{\lambda+1}\right)\mathbf{a}$ $\overrightarrow{CL}=\left(\frac{-\mu}{1+\mu}\right)\mathbf{a}$ $\overrightarrow{DL}=\left(\frac{1}{1+\mu}\right)\mathbf{a}$	eg $\overrightarrow{AK}=\left(\frac{\frac{1}{2}\mu}{\frac{1}{2}\mu+1}\right)\mathbf{a}\ \left(=\left(\frac{\mu}{\mu+2}\right)\mathbf{a}\right)$ $\overrightarrow{KB}=\left(\frac{1}{\frac{1}{2}\mu+1}\right)\mathbf{a}\ \left(=\left(\frac{2}{\mu+2}\right)\mathbf{a}\right)$ $\overrightarrow{CL}=\left(\frac{-2\lambda}{1+2\lambda}\right)\mathbf{a}$ $\overrightarrow{DL}=\left(\frac{1}{1+2\lambda}\right)\mathbf{a}$	**MISREAD** $\overrightarrow{AK}:\overrightarrow{KB}=\lambda:1$ and $\overrightarrow{CL}:\overrightarrow{LD}=\mu:1$	M1 For using the ratio to form an expression for a vector passing through *K* or *L* could be in terms of λ or μ $\overrightarrow{AK}$ or $\overrightarrow{KA}$, $\overrightarrow{KB}$ or $\overrightarrow{BK}$, $\overrightarrow{CL}$ or $\overrightarrow{LC}$, $\overrightarrow{DL}$ or $\overrightarrow{LD}$ (may be seen as part of another expression)
	eg $\overrightarrow{KL}=\left(\frac{-\lambda}{\lambda+1}\right)\mathbf{a}+\mathbf{b}+\left(\frac{1}{1+\mu}\right)\mathbf{a}$ or $\overrightarrow{LM}=\left(\frac{-1}{1+\mu}\right)\mathbf{a}+0.5\mathbf{b}$ $\overrightarrow{KM}=\left(\frac{-\lambda}{1+\lambda}\right)\mathbf{a}+\frac{3}{2}\mathbf{b}$ oe	eg $\overrightarrow{KL}=\left(\frac{-\frac{1}{2}\mu}{\frac{1}{2}\mu+1}\right)\mathbf{a}+\mathbf{b}+\left(\frac{1}{1+\mu}\right)\mathbf{a}$ $\overrightarrow{LM}=\left(\frac{-1}{1+2\lambda}\right)\mathbf{a}+\frac{1}{2}\mathbf{b}$ or $\overrightarrow{KM}=\left(\frac{-\frac{1}{2}\mu}{\frac{1}{2}\mu+1}\right)\mathbf{a}+\frac{3}{2}\mathbf{b}$ oe		M1 for finding an expression in λ and/or μ using the above misread for **one of** $\overrightarrow{KL}$ (or $\overrightarrow{LK}$), $\overrightarrow{LM}$ (or $\overrightarrow{ML}$), $\overrightarrow{KM}$ (or $\overrightarrow{MK}$) [If this mark is awarded it assumes the first M1]
	Two of the above – may have used $2\lambda=\mu$ to write all in one of λ or μ May be simplified or not – so may have brackets or not			M1 for finding an expression in λ or μ for **two of** $\overrightarrow{KL}$ (or $\overrightarrow{LK}$), $\overrightarrow{LM}$ (or $\overrightarrow{ML}$), $\overrightarrow{KM}$ (or $\overrightarrow{MK}$)
	(Giving answers of $\lambda=0.5(1+\sqrt{7}),\ \mu=1+\sqrt{7}$)			***A MAXIMUM OF 3 MARKS CAN BE AWARDED FOR THIS MISREAD***

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