24	e.g. $\left(\overrightarrow{AB}=\right)2\mathbf{b}-2\mathbf{a}$ oe or $\left(\overrightarrow{BA}=\right)2\mathbf{a}-2\mathbf{b}$ oe or $\left(\overrightarrow{BD}=\right)2(2\mathbf{b}-2\mathbf{a})(=4\mathbf{b}-4\mathbf{a})$ oe or $\left(\overrightarrow{AD}=\right)3(2\mathbf{b}-2\mathbf{a})(=6\mathbf{b}-6\mathbf{a})$ oe		5	M1
	e.g. $\left(\overrightarrow{OE}=\right)2\mathbf{b}+2(2\mathbf{b}-2\mathbf{a})+7\mathbf{a}+3\mathbf{b}\ (=3\mathbf{a}+9\mathbf{b})$ oe or $\left(\overrightarrow{OC}=\right)2\mathbf{a}+\lambda(2\mathbf{b}-2\mathbf{a})=(2-2\lambda)\mathbf{a}+2\lambda\mathbf{b}$ oe **or** $2\mathbf{b}+\lambda(2\mathbf{a}-2\mathbf{b})$ or $\left(\overrightarrow{CE}=\right)(2\mathbf{b}-2\mathbf{a})-\lambda(2\mathbf{b}-2\mathbf{a})+2(2\mathbf{b}-2\mathbf{a})+7\mathbf{a}+3\mathbf{b}=(1+2\lambda)\mathbf{a}+(9-2\lambda)\mathbf{b}$			M2 for 2 correct paths seen M1 for 1 correct path seen Any correct path for *OC* passing through *A* or *B* involving a variable
	e.g. $\frac{2-2\lambda}{2\lambda}=\frac{1+2\lambda}{9-2\lambda}$ oe or $\frac{2-2\lambda}{2\lambda}=\frac{3}{9}$ oe or $\frac{(1+2\lambda)}{(9-2\lambda)}=\frac{1}{3}$ oe or $\lambda=\frac{3}{4}$ or $(2-2\lambda)\mathbf{a}+2\lambda\mathbf{b}=\mu(3\mathbf{a}+9\mathbf{b})$ or $\lambda=\frac{3}{4}$ or $\mu=\frac{1}{6}$ or $2\mathbf{b}+\lambda(2\mathbf{a}-2\mathbf{b})=\mu(3\mathbf{a}+9\mathbf{b})$ or $\lambda=\frac{1}{4}$ or $\mu=\frac{5}{6}$			M1 for comparing coefficients of **a** and **b** for (*OC* and *CE*) **or** **(***OC* and *OE*) **or** (*CE* and *OE*) *OC* is a multiple of *OE* Two different paths for *OC*
		1 : 5		A1 dep M2 oe e.g 2 : 10
	Working required			**Total 5 marks**

24 ALT	e.g. $\left(\overrightarrow{AB} =\right) 2\mathbf{b} - 2\mathbf{a}$ oe or $\left(\overrightarrow{BA} =\right) 2\mathbf{a} - 2\mathbf{b}$ oe or $\left(\overrightarrow{BD} =\right) 2\left(2\mathbf{b} - 2\mathbf{a}\right)\left(= 4\mathbf{b} - 4\mathbf{a}\right)$ oe or $\left(\overrightarrow{AD} =\right) 3\left(2\mathbf{b} - 2\mathbf{a}\right)\left(= 6\mathbf{b} - 6\mathbf{a}\right)$ oe		5	M1
	e.g. $\left(\overrightarrow{OE} =\right) 2\mathbf{b} + 2\left(2\mathbf{b} - 2\mathbf{a}\right) + 7\mathbf{a} + 3\mathbf{b}\ \left(= 3\mathbf{a} + 9\mathbf{b}\right)$ oe			M1
	e.g. $\left(\overrightarrow{AE} =\right) 2\mathbf{b} - 2\mathbf{a} + 2\left(2\mathbf{b} - 2\mathbf{a}\right) + 7\mathbf{a} + 3\mathbf{b}\left(= \mathbf{a} + 9\mathbf{b}\right)$ oe			M1
	$\left[\overrightarrow{AE} = \lambda\overrightarrow{AD} + \mu\overrightarrow{OE}\right]$ $\mathbf{a} + 9\mathbf{b} = \lambda\left(6\mathbf{b} - 6\mathbf{a}\right) + \mu\left(3\mathbf{a} + 9\mathbf{b}\right)$ oe or $1 = -6\lambda + 3\mu$ oe and $9 = 6\lambda + 9\mu$ oe or or $\lambda = \frac{1}{4}$ or $\mu = \frac{5}{6}$			M1
		1 : 5		A1 dep on M2 oe e.g 2 : 10
	Working required			**Total 5 marks**

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