23	(a)		$-12\mathbf{a} + 8\mathbf{b}$	1	B1	oe
	(b)	$\left(\overrightarrow{PR} =\right) 6\mathbf{a} + 3(\text{"}-12\mathbf{a} + 8\mathbf{b}\text{"}) \left(= -30\mathbf{a} + 24\mathbf{b}\right)$ oe **or** $\left(\overrightarrow{RP} =\right) -3(\text{"}-12\mathbf{a} + 8\mathbf{b}\text{"}) - 6\mathbf{a} \left(= 30\mathbf{a} - 24\mathbf{b}\right)$		4	M1	for method to find $\overrightarrow{PR}$ **or** $\overrightarrow{RP}$, ft their $\overrightarrow{AB}$
		$\left(\overrightarrow{PQ} =\right) -6\mathbf{a} + n\mathbf{b}$ oe eg $\left(\overrightarrow{PQ} =\right) -6\mathbf{a} + m \times 8\mathbf{b}$ **or** $\left(\overrightarrow{OQ} =\right)$ 6**a** + k(“–30**a** + 24**b**”) **or** $\left(\overrightarrow{AQ} =\right) -12\mathbf{a} + n\mathbf{b}$			M1	for method to find $\overrightarrow{PQ}$ **or** $\overrightarrow{OQ}$ **or** $\overrightarrow{AQ}$
		$\overrightarrow{PQ} = \lambda \overrightarrow{PR}$ eg $-6\mathbf{a} + n\mathbf{b} = \lambda(\text{"}-30\mathbf{a} + 24\mathbf{b}\text{"})$ **or** $-6 = -30\lambda$ oe **or** $\lambda = \frac{1}{5}$ oe **OR** $\mu \overrightarrow{PQ} = \overrightarrow{PR}$ eg $\mu(-6\mathbf{a} + n\mathbf{b}) = \text{"}-30\mathbf{a} + 24\mathbf{b}\text{"}$ **or** $-6\mu = -30$ oe **or** $\mu = 5$ **OR** $\overrightarrow{OQ} = \overrightarrow{OP} + k\overrightarrow{PR}$ eg $n\mathbf{b}$ = 6**a** + k(“−30**a** + 24**b**”) **or** 0 = 6 – 30k or $k = \frac{1}{5}$ oe **OR** $\overrightarrow{AQ} = \overrightarrow{AR} + x\overrightarrow{RP}$ eg $-12\mathbf{a} + n\mathbf{b} = 3(\text{"}-12\mathbf{a} + 8\mathbf{b}\text{"}) + x(\text{"}30\mathbf{a} - 24\mathbf{b}\text{"})$ **or** $-36 + 30x = -12$ **or** $x = \frac{4}{5}$ oe			M1	for setting up an equation to find the value of the unknown coefficient(s)
		Working required	4.8		A1	oe eg $\frac{24}{5}$, dep on M1
						Total 5 marks