Question	Working	Answer	Mark	Notes
22 (a) (i)		$2\mathbf{a} + 2\mathbf{b}$	2	B1oe but must be simplified
(ii)		$4\mathbf{b} - 3\mathbf{a}$		B1oe need not be simplifed
(b)	eg $\overrightarrow{AP} = \lambda(4\mathbf{b} - 3\mathbf{a})$ **and** $\overrightarrow{AP} = -3\mathbf{a} + k(2\mathbf{a} + 2\mathbf{b})$ oe **[** $\overrightarrow{AP} = 2\mathbf{b} - \mathbf{a} - x(2\mathbf{a} + 2\mathbf{b})$ **]** oe eg $\overrightarrow{BP} = \mu(3\mathbf{a} - 4\mathbf{b})$ **and** $\overrightarrow{BP} = -4\mathbf{b} + m(2\mathbf{a} + 2\mathbf{b})$ oe **[** $\overrightarrow{BP} = 2\mathbf{a} - 2\mathbf{b} - v(2\mathbf{a} + 2\mathbf{b})$ **]** eg $\overrightarrow{OP} = x(2\mathbf{b} + 2\mathbf{a})$ **and** $\overrightarrow{OP} = 3\mathbf{a} + y(4\mathbf{b} - 3\mathbf{a})$ oe **[** $\overrightarrow{OP} = 4\mathbf{b} + t(3\mathbf{a} - 4\mathbf{b})$ **]**		3	M1 ft ft their answers in (a) Writing $\overrightarrow{AP}$ or $\overrightarrow{BP}$ or $\overrightarrow{OP}$ as correct vectors in 2 different independent ways – there may be other equivalent vectors Students may use other variations such as $\overrightarrow{PA}$, $\overrightarrow{PB}$, $\overrightarrow{PO}$
	eg $4\lambda = 2k$ and $-3\lambda = -3 + 2k$ or $3\mu = 2m$ and $-4\mu = -4 + 2m$ or $4y = 2x$ and $2x = 3 - 3y$			M1 2 correct equations gained from comparing coefficients
	Working required	3 : 4		A1oe Dep on M1 Any correct equivalent form eg 6 : 8, 0.75 : 1, $1 : \frac{4}{3}$, 1 : 1.3(333…) etc
				Total 5 marks