Question			Answer	Marks	AO	Guidance	
5	(a)		$\overrightarrow{BQ} = \frac{1}{2}(\mathbf{a} - \mathbf{b})$	B1	1.1a	Correct $\overrightarrow{BQ}$ or $\overrightarrow{QB}$	Or any correct vector involving Q, but must be clear which vector it is
			$\overrightarrow{PQ} = \frac{1}{4}\mathbf{b} + \frac{1}{2}(\mathbf{a} - \mathbf{b}) = \frac{1}{2}\mathbf{a} - \frac{1}{4}\mathbf{b}$	B1	1.1	Correct $\overrightarrow{PQ}$	Must be simplified to two terms **SC** Allow **B1** if correct unsimplified PQ is seen but individual vectors not explicit
				[2]			
	(b)		$\overrightarrow{PR}$ has the same direction as $\overrightarrow{PQ}$, so vector must be a multiple of $\overrightarrow{PQ}$	B1	2.4	Explain parallel (or collinear) vectors have direction vectors that are multiples of each other	Allow 'gradient' for 'direction', or 'they are on the same straight line', but must state or use 'multiple'
			So $\overrightarrow{PR} = \lambda(\frac{1}{2}\mathbf{a} - \frac{1}{4}\mathbf{b}) = \frac{1}{4}\lambda(2\mathbf{a} - \mathbf{b})$ $= k(2\mathbf{a} - \mathbf{b})$ **A.G.**	B1	2.1	Show given answer convincingly	Clear detail of scaling factor
				[2]			
	(c)		$\overrightarrow{AR} = -\mathbf{a} + \frac{3}{4}\mathbf{b} + k(2\mathbf{a} - \mathbf{b})$	B1	1.1	Correct expression for $\overrightarrow{AR}$ (or $\overrightarrow{OR}$), in terms of k	Could use A to Q to R (condone if k still used)
			$\overrightarrow{AR}$ multiple of **a** only, $\frac{3}{4}\mathbf{b} - k\mathbf{b} = 0$	M1	3.1a	Use coefficient of **b** = 0	Must be used in $\overrightarrow{AR}$ or $\overrightarrow{OR}$
			Obtain $k = \frac{3}{4}$	A1	1.1	Obtain correct value for k	May get different value for their k
			ratio $OA : AR = 2:1$	A1	1.1	Correct ratio (allow $1:\frac{1}{2}$) oe	Answer only is 0, as question says 'determine'
				[4]			