Q	Mark Scheme	Marks	Marking guidance
1 (a)	M(*x* axis)	M1	Need all terms. Dimensionally consistent. Condone if *m* missing throughout. Accept as part of a vector equation
	$2m\times(-2)+3m\times 2+4m\times 3k=9m\times\bar{x}$ $\bar{x}=\dfrac{2+12k}{9}$ *	A1*	Obtain given result
		2	
(b)	M(*y* axis)	M1	Need all terms. Dimensionally consistent. Might be seen as part of a vector equation in (a). It does not score any marks until referred to in part (b). Condone if *m* missing throughout.
	$2m\times 5+3m\times(-3)+4m\times k=9m\times\bar{y}$ $\left(\bar{y}=\dfrac{1+4k}{9}\right)$	A1	Correct unsimplified equation. Allow if *m* missing throughout.
	Form and solve equation in *k* $(2+12k+2+8k=27)$	DM1	Use their $\bar{y}$ and $\bar{x}+2\bar{y}=3$ Dependent on the two preceding M marks
	$k=\dfrac{23}{20}\quad(1.15)$	A1	Correct answer only
		4	
		(6)	