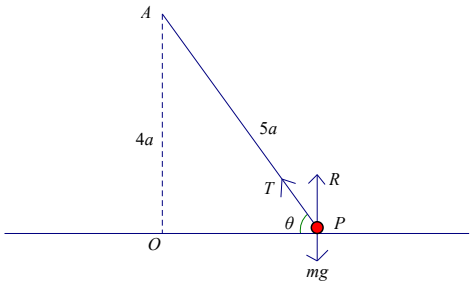
Question Number	Scheme	Marks	Notes
2a			
	Resolve vertically	M1	Need all terms. Dimensionally correct. Condone sign error and sine / cosine confusion
	$R+T\sin\theta=mg$ $\left(R+\frac{4}{5}T=mg\right)$	A1	Correct unsimplified equation
	Equation for circular motion	M1	Dimensionally correct. Condone sign error and sine / cosine confusion
	$T\cos\theta=m\times 3a\omega^2$ $\left(\frac{3}{5}T=m\times 3a\omega^2\right)$	A1	Correct unsimplified equation
	Substitute $\omega=\frac{1}{4}\sqrt{\frac{g}{a}}$ and obtain R	M1	As far as an equation in R, m and g
	$R=\frac{3mg}{4}$	A1	Or exact equivalent
		(6)	
2b	Use $mg-T\sin\theta>0$ to obtain ω	M1	
	$\omega<\frac{1}{2}\sqrt{\frac{g}{a}}$ *	A1*	**Given answer** from correct working
		(2)	
		[8]	