Question	Scheme	Marks	AOs
2a			
	Moments about A:	M1	3.3
	$W \times a\cos\theta = N \times 2a\sin\theta \;\; (W = 2N\tan\theta)$	A1	1.1b
	$\updownarrow R = W$	B1	3.4
	$\leftrightarrow F = N$	B1	3.4
	$F = \mu R \Rightarrow N = \mu W$	M1	1.2
	Complete strategy to form an equation in μ and θ	M1	3.1b
	$N = \mu \times 2N\tan\theta\,, \quad \mu = \dfrac{1}{2\tan\theta} \quad *$	A1*	2.2a
		(7)	
2b	Position of centre of mass affects value of N, which affects value of μ	B1	3.5a
	Closer to A, μ smaller, further from A, μ larger	B1	2.4
		(2)	
		(9 marks)	

Notes:		
2a	M1	Moments equation. Must be dimensionally correct and include all terms. Condone sign errors. Alternative equations: M(B): $2a\sin\theta \times F + a\cos\theta \times W = 2a\cos\theta \times R$ M(G): $a\sin\theta \times N + a\sin\theta \times F = a\cos\theta \times R$ M(X): $2a\sin\theta \times F = a\cos\theta \times W$
	A1	Correct unsimplified equation
	B1	Second equation e.g. by resolving vertically
	B1	Achieve a complete set of equations to solve for μ
	M1	Use of $F = \mu R$
	M1	Complete strategy to form an equation in μ and θ e.g. by taking moments, resolving and eliminating other variables.
	A1*	Derive the given result from correct working.
2b	B1	Correct reasoning
	B1	Correct conclusion