Question Number		Mark	Note
5a	Correct use of Pythagoras e.g. $AC = \sqrt{(25a)^2 - (7a)^2} = 24a$ *	B1*	Allow quotation of the Pythagorean triple without detailed working. Need '*AC* =' B0 if error(s) in working e.g. $\sqrt{576a}$
		[1]	
5b	Moments about *A* or equivalent complete method.	M1	Dimensionally consistent. Condone sine/cosine confusion. Allow M1A0A0 if *a*'s never appear. M0 if they use 25*a* instead of 24*a*
	$W \times 15a \times \cos\theta = 24aN$	A1	Correct unsimplified equation
	$N = \frac{15}{25}W = \frac{3}{5}W$ *	A1*	Obtain **given answer** from correct working. Must see use of $(\cos\theta =)\frac{24}{25}$
		[3]	
5c	Resolve vertically:	M1	First equation (enter first on ePEN). Condone sine/cosine confusion. Condone sign error.
	$R_A + N\cos\theta = W \left(R_A = \frac{53}{125}W \right)$	A1	Correct unsimplified equation
	Resolve horizontally:	M1	Second equation (enter second on ePEN). Condone sine/cosine confusion. Condone sign error.
	$F_A = N\sin\theta \left(= \frac{21}{125}W \right)$	A1	Correct unsimplified equation
	Alternatives for either of the above equations: Resolve perpendicular to the rod: $N + R_A\cos\theta = W\cos\theta + F_A\sin\theta$ Resolve parallel to the rod: $W\sin\theta = F_A\cos\theta + R_A\sin\theta$ M(C): $9a \times W\cos\theta + 24a \times F_A\sin\theta = 24a \times R_A\cos\theta$		

	M(*B*): $6aN+30a\times R_A\cos\theta=30a\times F_A\sin\theta+15a\times W\cos\theta$ M(*G*): $15a\times F_A\sin\theta+9aN=15a\times R_A\cos\theta$		
	Use $F_A=\mu R_A$ to obtain an equation in μ only.	**D**M1	Substitute their values correctly, dependent on both M's, to obtain an equation in μ only. This mark is only available if they use the equations for which they have been awarded marks.
	$\mu=\frac{21}{53}$ or an equivalent fraction	A1	Accept 0.4, 0.40 or better (0.39622….)
		[6]	
		(10)	