

Daily Question

Day 3 Mechanics – Mark Scheme

Question 1

(a)		
	$R = 45 \cos 40^\circ + 4g \cos 30^\circ$ $R \approx 68$	M1 A2, 1, 0 M1 A1 (5) accept 68.4
(b)	Use of $F = \mu R$ $F + 4g \sin 30 = 45 \cos 50^\circ$ Leading to $\mu \approx 0.14$	M1 M1 A2, 1, 0 M1 A1(6) accept 0.136
		(11 marks)

Question 2

(a)		B2 -1 e.e.o.o. (labels not needed) (2)
(b)	$F = \frac{1}{2} R$ $(\uparrow), R \cos \alpha + F \sin \alpha = mg$ $R = \frac{1.1g}{(\cos \alpha + \frac{1}{2} \sin \alpha)} = 9.8 \text{ N}$ $(\rightarrow), P + \frac{1}{2} R \cos \alpha = R \sin \alpha$ $P = R(\sin \alpha - \frac{1}{2} \cos \alpha)$ $= 1.96$	B1 M1 A2 M1 A1 (6) M1 A2 M1 A1 (5)
		[13]