QUESTION NUMBER	SCHEME	MARKS
8(a)	Perp. to plane for P: $R = mg\cos a$	M1A1
	P: $T = mg\sin\alpha + F$ Q: $T = 0.5mg$ **N.B**. $mg\sin\alpha + F = 0.5mg$ scores M1A1 (LHS) B1 RHS)	M1 A1 B1
	Use of $F = \mu R$	B1
	$0.5mg = \frac{5mg}{13} + \mu\frac{12mg}{13}$	dM1
	$\mu = \frac{1}{8}$	A1
		(8)
8(b)	$mg\sin\alpha - F = ma$ $\left(a = \frac{7g}{26} \quad (\text{ms}^{-2})\right)$	M1 A1
	$V^2 = 0^2 + 2\left(\frac{7g}{26}\right)0.8$	M1
	$V = 2.1$ or 2.05	A1
		(4)
		(12)
	Notes for question 8	
(a)		
M1	Resolve perpendicular to find an expression for R in terms of m, condone sin/cos confusion and sign errors.	
A1	Correct unsimplified equation.	
M1	Form an equilibrium equation for P. Correct no. of terms, dimensionally correct. If $F=ma$ is used then a must be zero.	
A1	Correct unsimplified equation.	
B1	Correct equation	
B1	Use of $F = \mu R$, seen or implied, in an equation.	
dM1	Dependent on previous M mark, replace trig and form an equation in μ only.	
A1	Correct answer. Accept 0.125, 0.13	
(b)		
M1	Use of $F=ma$ for P. Correct no. of terms, dimensionally correct, ignore sin/cos confusion.	
A1	Correct equation, trig and F do not need to be substituted.	
M1	Use their calculated acceleration to form an equation in V. M0 if they use g.	
A1	Correct answer 2/3sf	