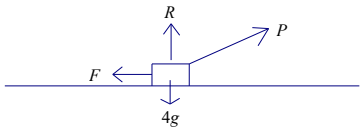
Question Number	Scheme	Marks	Notes
5a			
	Resolve horizontally	M1	Need relevant terms. Condone sin/cos confusion and sign errors
	$P\cos 30° = F$	A1	Correct unsimplified equation
	Resolve vertically	M1	Need relevant terms. Condone sin/cos confusion and sign errors
	$P\sin 30° + R = 4g$	A1	Correct unsimplified equation
	$P\dfrac{\sqrt{3}}{2} = \dfrac{2}{3}R$ $\Rightarrow P\left(\dfrac{1}{2} + \dfrac{3\sqrt{3}}{4}\right) = 4g$	DM1	Use $F = \dfrac{2}{3}R$ to obtain an equation in P only, dependent on previous M marks
	$(P =)$ 22 or 21.8	A1	2 or 3 sf
		[6]	
5b	N.B. If they increase their value of P by 25, treat as an MR i.e. they can score all three M marks in (b) and M1A1ft in (c) if they get v = 4.7 or 4.74.		
	$25\sin 30° + R = 4g$ (R = 26.7)	M1	Need relevant terms. Condone sin/cos confusion and sign errors M0 if not using 25 and/or uses their R from (a) N.B. M1 for R = 26.7
	Equation of motion	M1	Need relevant terms. Condone sin/cos confusion and sign errors M0 if not using 25 and/or uses 2/3R for F, where R is their R from (a).

	$25\cos 30° - F = 4a$	A1	Correct unsimplified equation
	$25\cos 30° - \frac{2}{3}(4g - 25\sin 30°) = 4a$	DM1	Use $F = \frac{2}{3}R$ to obtain an equation in *a* only, dependent on both previous M marks
	0.96 or $0.963\left(\text{m s}^{-2}\right)$	A1	2 or 3 sf
		[5]	
5c	e.g. $v^2 = 2\times a\times 1.5$	M1	Complete method to find an equation in *v* only using their *a* which must be POSITIVE and not *g*
	1.7 or 1.70 $\left(\text{m s}^{-1}\right)$	A1 cso	2 or 3 sf Beware of a 'correct' answer from an incorrect value of *a*.
		[2]	
		(13)	