Question Number	Scheme	Marks
6(a)	$R + T\sin\theta = mg$	M1A1
	$T\cos\theta - F = 0$	M1A1
	$F = \frac{1}{3}R$	B1
	Solve for T, in terms of mg	DM1
	$(T) = \frac{1}{3}mg$	A1 (7)
(b)	$F = \frac{1}{3}mg$	B1
	$F = \pm ma$ **OR** W.D. $= \pm Fd$	B1
	$\left(\frac{1}{2}u\right)^2 = u^2 - 2(\frac{1}{3}g)d$ $\quad$ $\frac{1}{2}m\left(\frac{1}{2}u\right)^2 = \frac{1}{2}mu^2 - \frac{1}{3}mgd$	DM1A1
	$d = \frac{9u^2}{8g}$ oe $\quad$ $d = \frac{9u^2}{8g}$ oe	A1 (5)
		(12)
	Notes	
6(a)	M1: Vertical resolution, with correct terms, condone sign errors and sin/cos confusion. Allow if they use $\sin(\frac{3}{5})$ or similar.	
	A1: Correct equation	
	M1: Horizontal resolution, with correct terms, condone sign errors and sin/cos confusion. Allow if they use $\cos(\frac{4}{5})$ or similar.	
	A1: Correct equation	
	B1: Seen anywhere, including on a diagram	
	DM1: Dependent on both M's	
	A1:cao. Accept 0.33 mg or better.	
6(b)	B1: Seen anywhere, including on a diagram	
	B1: $F = \pm ma$ where F is friction, (allow + or $-$) **OR** Fd	
	DM1: Complete method, dependent on the previous B mark, using a new dimensionally correct acceleration, to produce an equation, with correct no. of terms, in d, u and g, condone sign errors. **OR**, using work-energy principle using Fd , where F is friction, to produce an equation, with correct no. of terms, in d, u and g, condone sign errors	
	A1: Correct equation	
	A1: cao (must be $d =$, seen or implied, **but allow *s* in the working**)	