

Question Number	Scheme	Marks
4(a)	$0^2 = 11.2^2 - 2gd$ $d = 6.4$ $\text{max ht.} = 3.6 + 6.4 = 10 \text{ m}$	M1 A1 A1 A1 (4)
ALT	$11.2^2 = u^2 - 2g \times 3.6$ $u = 14$ $0^2 = 14^2 - 2gh$ $h = 10 \text{ m}$	M1 A1 A1 A1 (4)
(b)	$10 = \frac{1}{2}gt^2$ $t = \frac{10}{7}$ $\text{Total} = 2 \times \frac{10}{7} = 2.9 \text{ or } 2.86$	M1 A1 A1 dM1 A1 (5)
(c)		B1 single line dB1 $V < -11.2$ B1 11.2 B1 1.1(4) (4) 13
	Notes	
4(a)	M1 for a complete method to find d (d = distance from A to top) First A1 for a correct equation in d only. Second A1 for $d = 6.4$ Third A1 for $6.4 + 3.6 = 10$ (m)	
ALT	M1 for a complete method (must have 2 nd equation) to find h First A1 for $u = 14$ Second A1 for correct 2 nd equation Third A1 for $h = 10$ (m)	
4(b)	First M1 for a complete method to find an intermediate time (A to top or A to O) First A1 for a correct equation or equations. Second A1 for any intermediate time (e.g. $At_{TOP} = \frac{8}{7}$, $At_O = \frac{2}{7}$, $At_O = \frac{18}{7}$, $At_A =$)	