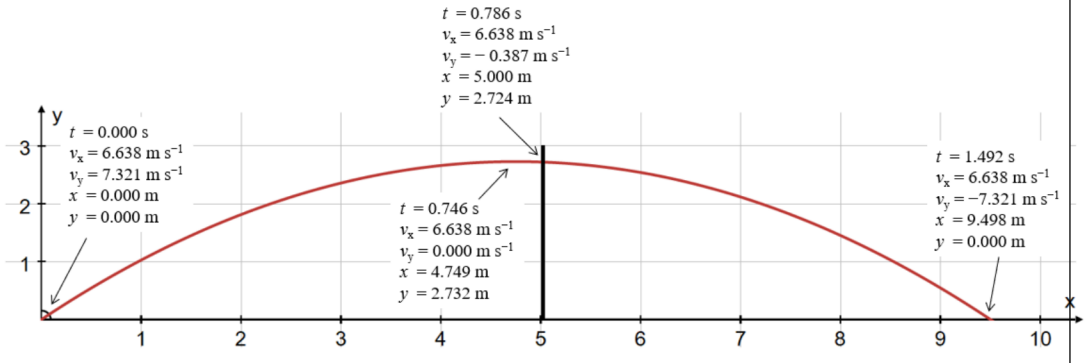
Question Number	Answer		Mark
15(a)	Use of correct trigonometry to calculate horizontal component [9.7 cos 49° or 9.7 sin 41° seen] Use of $s = u\,t + \frac{1}{2}\,a\,t^2$ with $a = 0$ [*i.e.* use of $s = v\,t$] $t = 0.79$ (s) [NB reverse argument scores 2 marks (Rule 4.2)] Example of calculation $v_H = 9.70\ \text{m s}^{-1} \times \cos 49° = 6.36\ \text{m s}^{-1}$ $t = 5.00\ \text{m} \div 6.36\ \text{m s}^{-1} = 0.786\ \text{s}$	**(1)** **(1)** **(1)**	**3**
15(b)	Use of correct trigonometry to calculate vertical component [9.7 sin 49° or 9.7 cos 41° seen] Use of $s = u\,t + \frac{1}{2}\,a\,t^2$ $s = 2.7$ m (ecf from (a)) ["show that" value also gives 2.72 m] Correct conclusion from valid comparison using student's calculated value **Or** Use of $v^2 = u^2 + 2\,a\,s$ Max height = 2.7 m [no ecf] Correct conclusion from valid comparison using student's calculated value [allow any valid *suvat* method, allow ecf if method involves t from (a)] Example of calculation $v_V = 9.70\ \text{m s}^{-1} \times \sin 49° = 7.32\ \text{m s}^{-1}$ $s = 7.32\text{m s}^{-1} \times 0.79\ \text{s} - 0.5 \times 9.81\ \text{m s}^{-2} \times (0.79\ \text{s})^2 = 2.72\ \text{m}$ 2.72 m < 3.00 m so ball does not go over the wall [Significant moments …  	**(1)** **(1)** **(1)** **(1)** **(1)** **(1)** **(1)**	**4**
	Total for question 15		**7**