

Question Number	Answer	Mark
<b>14</b>	<p>Resolves horizontal and vertical component of velocity (1)</p> <p>Use of <math>s = u t + \frac{1}{2} a t^2</math> with <math>a = -g</math> and <math>u = u_v</math> (1)</p> <p>Use of <math>s = u t + \frac{1}{2} a t^2</math> with <math>a = 0</math> and <math>u = u_h</math> (1)</p> <p>Horizontal distance = 130 m (1)</p> <p><u>Example calculation</u>  <math>u_v = 37 \text{ m s}^{-1} \times \sin 53^\circ = 29.5 \text{ m s}^{-1}</math>  <math>t = 2 \times 29.5 \text{ m s}^{-1} \div 9.81 = 6.02 \text{ s}</math>  <math>u_h = 37 \text{ m s}^{-1} \times \cos 53^\circ = 22.3 \text{ m s}^{-1}</math>  <math>s_h = 22.3 \text{ m s}^{-1} \times 6.02 \text{ s} = 134.1 \text{ m}</math></p>	<b>4</b>
	<b>Total for question 14</b>	<b>4</b>