

Question Number	Scheme	Marks
6(a)	$s = vt - \frac{1}{2}at^2$ $40 = 10 \times 5 - \frac{1}{2}a5^2$ $a = 0.8$	M1 A2 A1 (4)
(b)	<p>Finding <math>u</math> (<math>= 6</math>)</p> $s = ut + \frac{1}{2}at^2$ (A to M) $20 = 6t + \frac{1}{2}0.8t^2$ $t = \frac{-15 \pm \sqrt{225 + 200}}{2}$ $= 2.8 \text{ or } 2.81 \text{ or better}$	M1 M1 A1 <b>DM1</b> A1 (5)
	<p><b>Alternative :</b></p> <p>Finding <math>v</math> (<math>= \sqrt{68}</math>)</p> $s = vt - \frac{1}{2}at^2$ (A to M) $20 = \sqrt{68}t - \frac{1}{2}0.8t^2$ $t = \frac{\sqrt{68} \pm \sqrt{68 - 32}}{0.8}$ $= 2.8 \text{ or } 2.81 \text{ or better}$	M1 M1 A1 <b>DM1</b> A1 (5)
	<p><b>Alternative :</b></p> $s = vt_1 - \frac{1}{2}at_1^2$ (M to B) $20 = 10t_1 - \frac{1}{2}0.8t_1^2$ $t_1 = \frac{10 \pm \sqrt{100 - 32}}{0.8}$ $= 2.192$ $t = 5 - t_1 = 2.8 \text{ or } 2.81 \text{ or better}$	M2 A1 <b>DM1</b> A1 (5) <b>9</b>