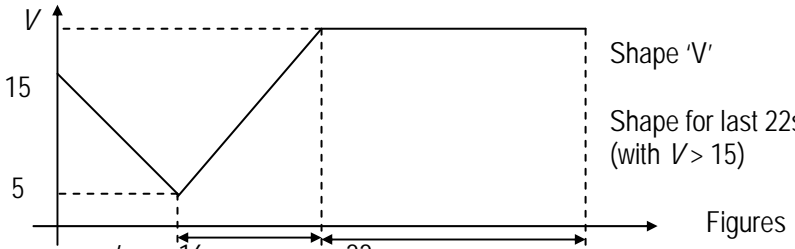
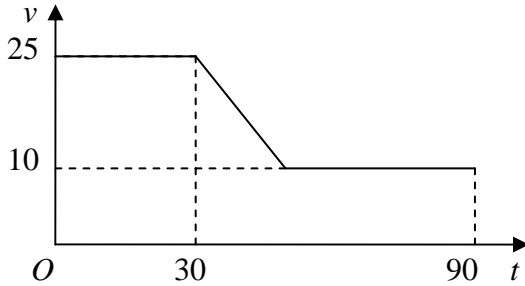


SUVAT Horizontal Problems 2008-10

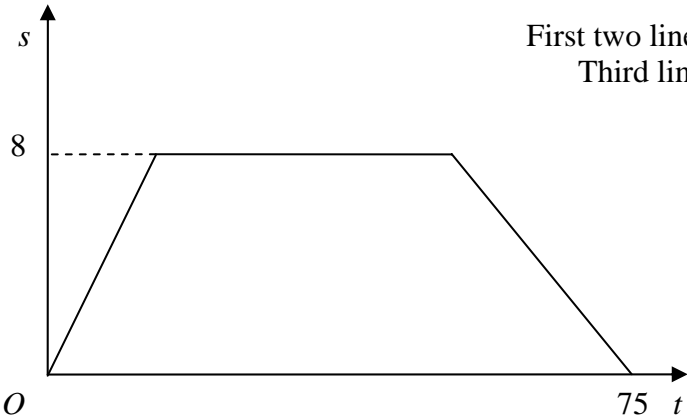
Question Number	Scheme	Marks
3.(a)		<p>B1</p> <p>B1</p> <p>B1 (3)</p>
(b)	$\frac{1}{2}(15 + 5) \times t = 120$ $\Rightarrow t = 12 \rightarrow T = 12 + 16 + 22 = \underline{50\text{ s}}$	<p>M1</p> <p>M1 A1 (3)</p>
(c)	$120 + \frac{1}{2}(V + 5) \cdot 16 + 22V = 1000$ $\text{Solve: } 30V = 840 \Rightarrow V = \underline{28}$	<p>M1 <u>B1</u> A1</p> <p>DM1 A1</p> <p>(5)</p> <p>11</p>

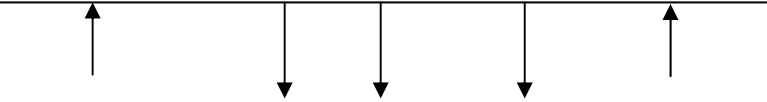
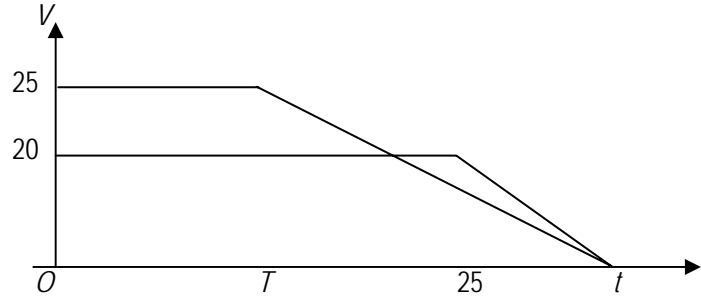
Question Number	Scheme	Marks
	<p style="text-align: center;">-</p> <p style="text-align: center;"> </p>	
4.	<p>(a)</p>  <p style="text-align: right;">shape 25, 10, 30, 90</p> <p>(b) $30 \times 25 + \frac{1}{2}(25 + 10)t + 10(60 - t) = 1410$</p> $7.5t = 60$ $t = 8 \text{ (s)}$ $a = \frac{25 - 10}{8} = 1.875 \text{ (ms}^{-2}\text{)}$	<p>B1 B1 (2)</p> <p>M1 <u>A1</u> A1</p> <p>DM1 A1</p> <p>M1 A1 (7)</p> <p>[9]</p>

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Question Number	Scheme	Marks
Q1	$45 = 2u + \frac{1}{2}a2^2 \Rightarrow 45 = 2u + 2a$ $165 = 6u + \frac{1}{2}a6^2 \Rightarrow 165 = 6u + 18a$ <p style="text-align: center;">eliminating either u or a</p> <p style="text-align: center;">$u = 20$ and $a = 2.5$</p>	<p>M1 A1</p> <p>M1 A1</p> <p>M1</p> <p>A1 A1</p> <p style="text-align: right;">[7]</p>
	—	
	<p>—</p> <p>—</p> <p>—</p> <p>—</p> <p>—</p> <p>—</p>	

January 2010
6677 Mechanics M1
Mark Scheme

Question Number	Scheme	Marks
Q2.	<p>(a)</p>  <p>First two line segments Third line segment 8, 75</p> <p>(b)</p> $\frac{1}{2} \times 8 \times (T + 75) = 500$ <p>Solving to $T = 50$</p>	<p>B1 B1 B1 (3)</p> <p>M1 A2 (1,0) DM1 A1 (5) [8]</p>

Question Number	Scheme	Marks
		
<p>Q5 (a)</p>	 <p>Shape (both) Cross Meet on t-axis Figures 25,20,T,25</p>	<p>B1 B1 B1 B1</p> <p>(4)</p>
<p>(b)</p>	<p>For Q: $20\left(\frac{t+25}{2}\right) = 800$ $t = 55$</p> <p>For P: $25\left(\frac{T+55}{2}\right) = 800$ solving for T: $T = 9$</p>	<p>M1 A1 DM1 A1</p> <p>M1 A1 DM1 A1</p> <p>(8) [12]</p>