Question Number	Scheme	Marks
7(a)		B1 for A B1 for B B1 4 & T Allow their numerical value of T (3)
7(b)	$\dfrac{4}{0.8} = 5$ (s)	B1
	$100 = \dfrac{(t+t-5)}{2} \times 4$ **OR** $100 = \dfrac{1}{2} \times 5 \times 4 + 4(t-5)$	M1A1ft
	$t = 27.5$ (s)	A1
		(4)
7(c)	$100 = \dfrac{(27.5+27.5-T)}{2} \times T$ **OR** $100 = \dfrac{1}{2} \times T \times T + T(27.5-T)$	M1A1ft
	$T^2 - 55T + 200 = 0$ oe	A1
	$T = 3.915047\ldots$ accept 3.9 or better	A1
		(4)
7(d)	$4 - 3.915..$	M1
	0.085 or better (m s^{-1})	A1**ft**
		(2)
		(13)
	Notes for question 7	
7(a)	B1 Correct shape for A's graph.	
	B1 Correct shape for B's graph with steeper gradient initially and must cross A's graph. <u>Both graphs must end at the same time</u>. B0 once if solid vertical line at the end	
	B1 4 and T correctly marked. Allow appropriate delineators. **N.B.** If graphs are on separate axes can score max B1B0B1 If no labels, give BOD. If incorrect labels, max B1B0B1	
7(b)	B1 5 (s) seen – could be on graph	
	M1 Attempt at equation in *t only*, with correct structure i.e. trapezium or (rectangle + triangle) or (rectangle – triangle) oe including $\dfrac{1}{2}$ where appropriate, based on total area (OR distance using 2 or more *suvat* formulae) being 100 M0 for a *single suvat* equation for the *whole* motion. **N.B.** If they clearly use T (for t) in their equation and **in their answer**, it's M0 but give BOD where possible.	
	A1ft Correct equation in *t* only, ft on their 5	
	A1 cao	
7(c)	M1 Attempt at equation in *T only*, with correct structure, i.e. trapezium or (rectangle + triangle) or (rectangle – triangle) oe based on total area (OR distance using 2 or more *suvat* formulae) being 100 M0 for a *single suvat* equation for the *whole* motion.	