Que	stion	Scheme	Marks	AOs	
1	(a)	Because the distances travelled or displacements are equal oe. If they mention the times are the same as well, ignore it.	B1	2.4	
			(1)		
1	(b)	0.8 or 4/5 (m s ^{-2})	B1	1.1b	
			(1)		
1(c)		$\frac{1}{2} \times 5 \times 4 + (4 \times 22.5) \text{ or } \frac{1}{2} (27.5 + 22.5) \times 4 \text{ or } 27.5 \times 4 - \frac{1}{2} \times 5 \times 4$	M1	3.1b	
		100 (m)	A1	1.1b	
			(2)		
1(d)		Total area under graph = their answer for part (c)	M1	3.1b	
		$\frac{1}{2}X \times X + X(27.5 - X) = 100$	A1 ft	1.1b	
		OR $\frac{1}{2}(27.5+27.5-X) \times X = 100$ OR $27.5X - \frac{1}{2}X^2 = 100$	A1 ft	1.1b	
		<i>X</i> = 3.92 to 3sf	A1	1.1b	
			(4)		
	(8 ma				
Notes:					
1a	1aB1Must mention distances being equal specifically.				
1b	B1	cao			
1c	M1	Clear attempt to find the total area under the <i>P</i> graph, with the correct structure i.e. (triangle + rectangle) OR trapezium OR (rectangle – triangle); must see use of ½ where appropriate.			
		OR they may use <i>suvat</i> to find the distance covered by <i>P</i> in one or more of the	e sections.		
		N.B . M0 for use of a single <i>suvat</i> formula for the whole motion			
	A1	cao			
1d	M1	Clear attempt to equate the total area under the <i>S</i> graph, with the correct structure, i.e. (triangle + rectangle) OR trapezium OR (rectangle – triangle), must see use of $\frac{1}{2}$ where appropriate, to their answer for (c) to give a <u>quadratic equation in <i>X</i> only</u>			
		N.B. they may use <i>suvat</i> to find the distance covered by <i>S</i> in one or more of the sections.			
		N.B. IVID FOR use of a single suvat formula for the Whole Motion			
	A1 ft	for (c)			
	A1 ft	Correct unsimplified quadratic equation in X only, follow their answer for (c)			
	A1	сао			