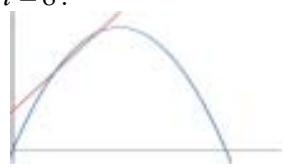
Question	Answer	Marks	Guidance
(a)	Use suvat to find expressions for s_A or s_B	**M1**	For s_A must be using $u = 8$ and time of $t \pm 4$ For s_B, using $s = ut + \frac{1}{2}at^2$ with $u = 20$ and $a = \pm 2$
	$(s_A =) 8(4 + t) [= 32 + 8t]$	**A1**	Any unsimplified expression; ISW
	$(s_B =) 20t - \frac{1}{2} \times 2 \times t^2$	**A1**	Any unsimplified expression; ISW If 0 marks scored then allow **SC**: B1 for $(s_A =) 8t$ and B1 for $(s_B =) 20(t-4) - \frac{1}{2} \times 2 \times (t-4)^2$ maximum 2/3
		3	

Question	Answer	Marks	Guidance
(b)	$8(4+t)=20t-\frac{1}{2}\times 2\times t^2$	***M1**	Equating their expressions for s_A and s_B to form an equation in t where s_A is of the form $\pm 8t \pm 32$ and s_B is of the form $\pm 20t \pm \frac{1}{2}\times 2\times t^2$
	Attempt to solve a 3-term quadratic to find at least one t value	**DM1**	For reference $t^2-12t+32=0$ Allow if no working seen and have correct real solution(s) to *their* 3-term quadratic. If working shown and if using the formula, it must be using the correct formula. If factorising must have 3 of the 4 terms correct of $(t-4)(t-8)$
	$t=4$ and 8	**A1**	If 0 marks scored then allow **SC:** M1 for $\pm 8t = \pm 20(t \pm 4) \pm \frac{1}{2}\times 2\times (t\pm 4)^2$ and A1 for $t=8$ and 12 maximum 2/3.
		3	

Question	Answer	Marks	Guidance
(c)	Straight line	**B1 FT**	Positive gradient, intersecting positive s axis. Full domain not required. FT if they get $s_A = 8t$ using the **SC** in **(a)**
	Inverted quadratic, passing through origin.	**B1 FT**	Full domain not required but must clearly go beyond the maximum. FT if they get $s_B = 20(t-4) - \frac{1}{2} \times 2 \times (t-4)^2$ using the SC in **(a)**, with curve though positive t axis before turning point.
	All correct, line through (0, 32), quadratic through (20, 0), intersections indicated at $t = 4$ and $t = 8$. 	**B1**	Intersections must occur before the turning point.
		3	