Question	Answer	Marks	Guidance
10(b)	**Either** Area of trapezium = $\frac{231}{32}$	**B1**	Allow unsimplified
	$\int_{-1}^{2}\frac{1}{(x+2)^2}+\frac{3}{x+2}\,dx$ $=\left[-\frac{1}{x+2}+3\ln(x+2)\right]_{-1}^{2}$	**2**	**B1** for $-\frac{1}{x+2}$ **B1** for $3\ln(x+2)$
	$\left[\left(-\frac{1}{4}+3\ln 4\right)-(-1)\right]$	**M1**	For correct use of limits in *their* integral, but must have at least one of the two preceding **B** marks
	Area = $\frac{207}{32}-\ln 64$	**2**	**A1** for $\frac{207}{32}$ **A1** for $-\ln 64$
	Or $\int_{-1}^{2}-\frac{17}{16}x+\frac{47}{16}-\frac{1}{(x+2)^2}-\frac{3}{x+2}\,dx$ $\left[\left(-\frac{17}{32}x^2+\frac{47}{16}x+\frac{1}{x+2}-3\ln(x+2)\right)\right]_{-1}^{2}$	**(3)**	**B1** for $-\frac{17}{32}x^2+\frac{47}{16}x$ **B1** for $\int\frac{1}{(x+2)^2}dx=-\frac{1}{(x+2)}$ **B1** for $\int\frac{3}{x+2}dx=3\ln(x+2)$
	$\left(-\frac{17}{8}+\frac{47}{8}+\frac{1}{4}-3\ln 4\right)-\left(-\frac{17}{32}-\frac{47}{16}+1\right)$	**(M1)**	For correct use of limits in *their* integral, but must have at least one of the two preceding **B** marks
	Area = $\frac{207}{32}-\ln 64$	**(2)**	**A1** for $\frac{207}{32}$ **A1** for $-\ln 64$
11(a)(i)	0	**B1**	
11(a)(ii)	-3	**B1**	
11(a)(iii)	$\left(\frac{1}{2}(25+15)\times 30\right)+\left(\frac{1}{2}(30+60)\times 10\right)+\left(\frac{1}{2}\times 20\times 60\right)$	**M1**	For an unsimplified expression for the required area allowing at most one incorrect length
	Total distance = 1650	**A1**	
11(b)(i)	$v=4\cos\frac{5\pi}{3}-4$ $=-2$	**M1**	
	Speed = 2	**A1**	

Question	Answer	Marks	Guidance
11(b)(ii)	$a = -12\sin 3t$	**B1**	
	$\sin 3t = 0$ $3t = \pi$ Leading to	**M1**	For equating to zero and attempt to solve to obtain t, allow if in degrees
	$t = \frac{\pi}{3}$	**A1**	
11(b)(iii)	$s = k\sin 3t - 4t\,(+c)$	**M1**	
	$s = \frac{4}{3}\sin 3t - 4t$	**A1**	