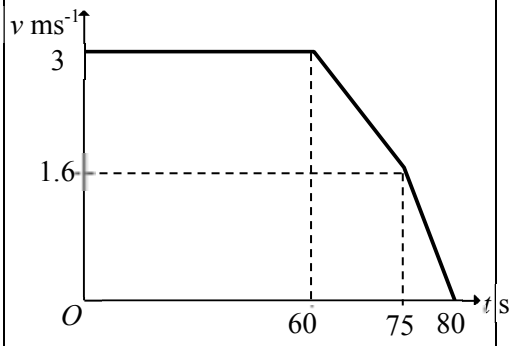
Question	Answer	Marks	Partial Marks
5(b)	$\sqrt{their(\alpha+3)^2+(-2)^2}$	**M1**	
	$\frac{2\mathbf{j}-their8\mathbf{i}}{\sqrt{their68}}$	**A1**	**FT** *their* α
6	$3x^2+8x+5=kx-7$	**M1**	
	$3x^2+(8-k)x+12$ [= 0] soi	**A1**	
	$(8-k)^2-4(3)(12)$	**M1**	
	$k^2-16k-80*0$	**M1**	
	Critical values: –4 and 20 soi	**A1**	
	$-4<k<20$	**A1**	Alternative method: **M1** for $k=6x+8$ oe **M1** for $y=(6x+8)x-7$ **M1** for $3x^2+8x+5=(6x+8)x-7$ **A1** for $x=\pm2$ **A1** for $k=-4$, $k=20$ **A1** for $-4<k<20$
7(a)	$x+2y=\lg5$ or $3x+4y=\lg50$	**B1**	
	Solves *their* linear simultaneous equations	**M1**	
	$x=\lg2$ or equivalent simplified form	**A1**	
	$y=\frac{1}{2}\lg\frac{5}{2}$ or equivalent simplified form	**A1**	If **A0 A0** then **SC1** for a correct pair of unsimplified values or a correct pair of decimal values correct to at least 3sf
7(b)	$\left(x^{\frac{1}{3}}+2\right)\left(2x^{\frac{1}{3}}-5\right)$ oe	**M1**	
	$x^{\frac{1}{3}}=-2,\ \frac{5}{2}$	**M1**	
	$x=-8,\ \frac{125}{8}$	**A1**	
8(a)	$32-80x+80x^2-40x^3+10x^4-x^5$	**B3**	**B2** for any four or five terms correct or **B1** for any three terms correct or **M1** for a fully correct but unsimplified expansion

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Question	Answer	Marks	Partial Marks
8(b)	Combines powers sufficiently to be able to take logs or applies correct log laws	**M1**	
	For making use of *their* expansion from part (a)	**M1**	
	$40x^2(2-x)$ [= 0] oe	**M1**	**FT** *their* (a) if possible
	$x = 0$, $x = 2$ cao	**A1**	
9(a)		**B3**	**B1** for correct shape with three distinct linear sections **B1** for 3 and 1.6 on vertical axis **B1** for 60, 75, 80 on horizontal axis
9(b)	$3 \times 60 + 15(1.6) + 0.5(15)(1.4) + 0.5(5)(1.6)$ or $3 \times 60 + 0.5(3 + 1.6)(15) + 0.5(5)(1.6)$	**M2**	**M1** for attempting at least two terms of the sum:
	218.5 (metres)	**A1**	
9(c)	0.32 (ms^{-2})	**B1**	
10(a)	$a = 3$, $b = 1$	**B2**	B1 for each
10(b)	$\int_0^{their\ b} 4x^{\frac{2}{3}}\,dx + \int_{their\ b}^{their\ a} (x-3)^2\,dx$	**M1**	
	$\left[\frac{3}{5} \times 4x^{\frac{5}{3}}\right]_0^{their\ b} + \left[\frac{(x-3)^3}{3}\right]_{their\ b}^{their\ a}$ soi	**M2**	M1 for each, soi
	$\frac{12}{5}(their\ b) - \frac{12}{5}(0) + \frac{(their\ a - 3)^3}{3} - \frac{(their\ b - 3)^3}{3}$	**M1**	
	$\frac{76}{15}$ or $5\frac{1}{15}$ or 5.07 or 5.06 rot to four or more figs; cao	**A1**	