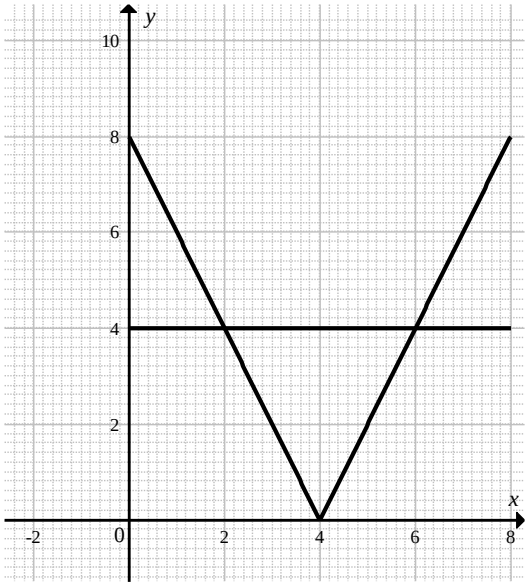
Question	Answer	Marks	Partial marks
2(c)	$\frac{x}{\sqrt{1+2x}} + \sqrt{1+2x} = 0$ oe and solves as far as $x =$ ….	**M1**	**FT** a derivative of the form $\frac{ax}{\sqrt{1+2x}} + b\sqrt{1+2x}$ or $\frac{a}{\sqrt{1+2x}} + b\sqrt{1+2x}$ or $\frac{ax+b}{\sqrt{1+2x}}$ oe
	$x = -\frac{1}{3}$ oe	**A1**	
3(a)	$8a - 12 - 6 + b = 0$ oe and $-a - 3 + 3 + b = 0$ oe and $a = 2$, $b = 2$	**B3**	**B1** for $8a - 12 - 6 + b = 0$ oe **B1** for $-a - 3 + 3 + b = 0$ oe
3(b)	$[2x^3 - 3x^2 - 3x + 2 =]$ $(x - 2)$, $(x + 1)$, $(2x - 1)$ or $(x^2 - x - 2)$, $(2x - 1)$ **and** $x = 2, \frac{1}{2}, -1$ OR $[2x^3 - 3x^2 - 3x + 2 =]$ $(x + 1)$, $(2x^2 - 5x + 2)$ or $(x - 2)$, $(2x^2 + x - 1)$ **and** correct factorisation or method of solution of the quadratic **and** $x = 2, \frac{1}{2}, -1$ OR $2 - 1 + x = -\left(\frac{-3}{2}\right)$ or $2 - 1 + x = \frac{3}{2}$ or for $2 \times -1 \times x = \frac{-2}{2}$ or $2 \times -1 \times x = -1$ **and** $x = 2, \frac{1}{2}, -1$	**B2**	**B1** for $[2x^3 - 3x^2 - 3x + 2 =]$ $(x - 2)$ and $(x + 1)$ seen or $(x^2 - x - 2)$ seen or $(x + 1)$, $(2x^2 - 5x + 2)$ or $(x - 2)$, $(2x^2 + x - 1)$ **B1** for $2 - 1 + x = -\left(\frac{-3}{2}\right)$ or $\frac{3}{2}$ or for $2 \times -1 \times x = \frac{-2}{2}$ or -1

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Question	Answer	Marks	Partial marks
4	Correct intersecting graphs  	**3**	$y = \|2x - 8\|$: **M1** for an attempt to draw the sections from (0, 8) to (2, 4) and (6, 4) to (8, 8) with at least one side accurate or for $\vee$ shape with vertex at (4, 0) **A1** for correct graph **B1** for $y = 4$ drawn
	critical values: 2, 6	**M1**	**dep** on 3 marks awarded for intersecting graphs
	$x < 2$, $x > 6$ mark final answer	**A1**	
5(a)	Correctly derives correct equation free of logarithms e.g. $x^9 = 16^{18}$ or $x = 16^2$ oe or $x^9 = 2^{72}$ or $x = 2^8$ oe or $x^{\frac{9}{4}} = 2^{18}$ oe	**M3**	**M2** for correctly changing to consistent bases **and** correct use of one other log law or correct use of $\log_a a = 1$ in a correct equation e.g. $\frac{\log_{16} x^2}{\frac{1}{4}} + \log_{16} x = 18$ oe or $\log_2 x^2 + \frac{\log_2 x}{4} = 18$ oe or $\frac{\log_x x^2}{\log_x 2} + \frac{\log_x x}{4\log_x 2} = 18$ or **M1** for correctly changing to consistent bases or correct use of one other log law or correct use of $\log_a a = 1$ in a correct equation
	$x = 256$ nfww	**A1**	

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