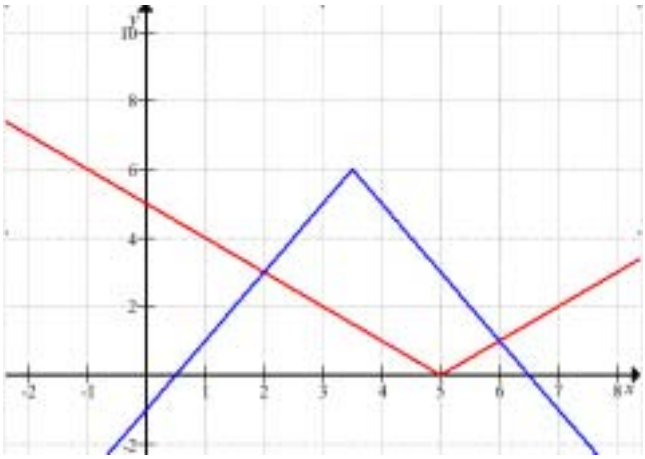
Question	Answer	Marks	Partial Marks
1(a)		**4**	**M1** for $y = \lvert x - 5 \rvert$: $\vee$ shape with vertex at (5, 0) **A1** Correct graph with y-intercept at (0, 5) **M1** for $y = 6 - \lvert 2x - 7 \rvert$: $\wedge$ shape with vertex at (3.5, 6) **A1** Correct graph with y-intercept at (0, −1)
1(b)	$x < 2$ or $x > 6$ final answer	**B2**	**B1** for exactly two correct critical values or **B1 FT** for exactly two correct FT critical values soi, FT dependent on at least M1 in **(a)** If the CVs are decimal allow BOD for reasonable values
2	Solves $2x + 2y = 6$ and $2x - \sqrt{3}y = 5$ oe by elimination as far as $2y + \sqrt{3}y = 1$ or substitutes $x = 3 - y$ into $2x - \sqrt{3}y = 5$ oe OR solves $\sqrt{3}x + \sqrt{3}y = 3\sqrt{3}$ and $2x - \sqrt{3}y = 5$ oe by elimination as far as $2x + \sqrt{3}x = 3\sqrt{3} + 5$ or substitutes $y = 3 - x$ into $2x - \sqrt{3}y = 5$ oe	**M1**	
	$y = \frac{1}{2+\sqrt{3}}$ or $x = \frac{3\sqrt{3}+5}{2+\sqrt{3}}$	**A1**	
	$y = \frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}}$ oe or $x = \frac{3\sqrt{3}+5}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}}$ oe	**M1**	**FT** *their* value of x or y providing of equivalent difficulty
	$y = 2 - \sqrt{3}$ and $x = 1 + \sqrt{3}$	**A2**	**A1** for either and no extra values
3(a)	$a = 3$	**B1**	
	$b = 2$	**B1**	
	$c = -1$	**B1**	
3(b)(i)	2	**B1**	

Question	Answer	Marks	Partial Marks
3(b)(ii)	$\frac{2\pi}{3}$ oe or 2.09 or 2.094[395…] rot to 4 or more sf	**B1**	
4(a)	$2x-3=6^{\frac{1}{2}}$ oe, soi	**M1**	
	$x=\frac{6^{\frac{1}{2}}+3}{2}$ or $x=\frac{\sqrt{6}+3}{2}$	**A1**	
4(b)	$\ln\frac{2u}{u-4}=\ln e$ soi or $\ln\frac{2u}{u-4}=1$ soi or $\ln 2u=\ln e(u-4)$ soi	**M1**	Condone one sign or bracketing error
	$\frac{2u}{u-4}=e$ or $2u=e(u-4)$ oe	**M1**	**FT** *their* logarithmic equation
	$u=\frac{4e}{e-2}$ or $u=\frac{-4e}{2-e}$ or equivalent exact form	**A1**	
4(c)	$\frac{3^v}{\left(3^3\right)^{2v-5}}=3^2$ oe soi or $\frac{9^{\frac{v}{2}}}{\left(9^{\frac{3}{2}}\right)^{2v-5}}=9$ oe soi or $\log 3^v-\log 27^{2v-5}=\log 9$ oe soi	**B1**	
	$15-5v=2$ oe or $v\log 3-(2v-5)\log 27=\log 9$	**M1**	**FT** *their* exponential equation in the same base or *their* logarithmic equation with any consistent base, providing *their* exponential or logarithmic equation has at most one sign or arithmetic error
	$v=\frac{13}{5}$ oe	**A1**	