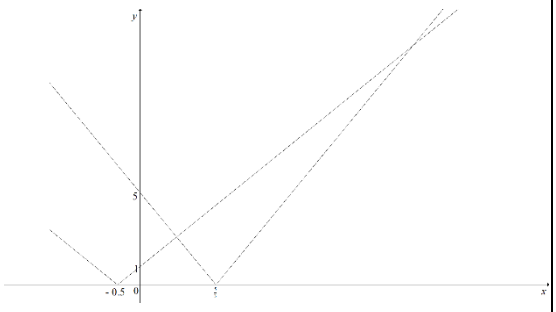
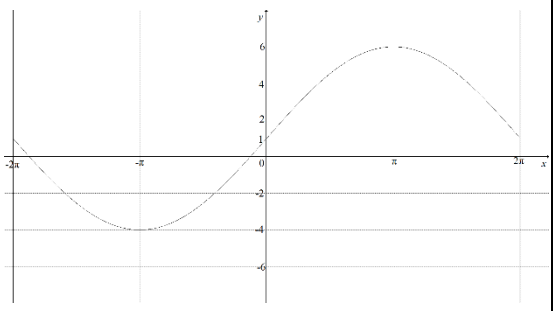
Question	Answer	Marks	Guidance
1(a)		**3**	**B1** for 2 V-shaped graphs with vertices in the 1st and 2nd quadrants, intersecting twice in the first quadrant. **Dep B1** for $(0,1)$ and $(0,5)$ **B1** for $\left(-\frac{1}{2},0\right)$ and $\left(\frac{5}{3},0\right)$
1(b)	$x=\frac{4}{5}$	**B1**	
	$2x+1=-5+3x$ oe	**M1**	For considering the negative for one of the functions
	$x=6$	**A1**	
	Alternative		
	$5x^2-34x+24=0$	**(2)**	**M1** for squaring each function and attempt to form a 3-term quadratic equation = 0. Allow one error. **A1** for a correct equation
	$x=\frac{4}{5}$, $x=6$	**(A1)**	For both
2(a)		**3**	**B1** for a complete cycle starting and finishing at $(-2\pi,\ 1)$ and $(2\pi,\ 1)$ **B1** for intercept at $y=1$ **B1** for a maximum when $y=6$ and a minimum when $y=-4$
2(b)	5	**B1**	
2(c)	4π or 720^{o}	**B1**	

Question	Answer	Marks	Guidance
3	$y^3 = m\ln x + c$	**B1**	May be implied by subsequent work
	$5 = m + c$ $15 = 6m + c$ $m = 2,\ \ c = 3$	**2**	**B1** for $m = 2$ **B1** for $c = 3$
	$y = \sqrt[3]{2\ln x + 3}$	**B1**	
	Alternative		
	$y^3 = m\ln x + c$	**(B1)**	May be implied by subsequent work
	Gradient = 2	**(B1)**	For finding the gradient and equating to m
	$5 = m + c$ $15 = 6m + c$ $c = 3$	**(B1)**	For at least one correct equation and finding c
	$y = \sqrt[3]{2\ln x + 3}$	**(B1)**	
4	$x = \dfrac{2 \pm \sqrt{4 + 4\left(\sqrt{5}-1\right)\left(\sqrt{5}+1\right)}}{2\left(\sqrt{5}-1\right)}$	**M1**	For a correct use of the quadratic formula with sufficient detail
	$x = \dfrac{2 \pm 2\sqrt{5}}{2\left(\sqrt{5}-1\right)}$ or $x = \dfrac{1 \pm \sqrt{5}}{\left(\sqrt{5}-1\right)}$	**2**	**Dep M1** for attempt to simplify to obtain 2 real roots **A1** for either
	$x = \dfrac{\left(\sqrt{5}+1\right)}{\left(\sqrt{5}-1\right)} \times \dfrac{\left(\sqrt{5}+1\right)}{\left(\sqrt{5}+1\right)}$	**M1**	For attempt at rationalisation
	$x = \dfrac{3}{2} + \dfrac{\sqrt{5}}{2}$	**A1**	
	$x = -1$	**B1**	
5(a)	$a + 3d = 25$ $a + 8d = 50$	**M1**	For at least one correct equation and attempt to solve to find at least one unknown
	$a = 10$	**A1**	
	$d = 5$	**A1**	