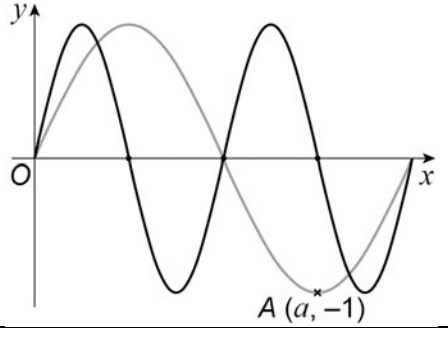
Q	Marking instructions	AO	Marks	Typical solution
6(a)(i)	States $\frac{3\pi}{2}$	1.2	B1	$\frac{3\pi}{2}$
	Subtotal		**1**	

Q	Marking instructions	AO	Marks	Typical solution
6(a)(ii)	Sketches the graph with the correct shape between $0 \leq x \leq \pi$ Must be approximately the correct amplitude and meet the x-axis at 0, approximately $\frac{\pi}{2}$ and π	1.1b	B1	
	Subtotal		**1**	

Q	Marking instructions	AO	Marks	Typical solution
6(b)	Uses $\sin^2 2x + \cos^2 2x = 1$ to obtain a quadratic equation in $\sin 2x$	3.1a	M1	$2\cos^2 2x + 5\sin 2x + 5 = 0$ $2(1-\sin^2 2x) + 5\sin 2x + 5 = 0$ $2\sin^2 2x - 5\sin 2x - 7 = 0$ $\sin 2x = -1$ or $\sin 2x = 3.5$ $\sin 2x \neq 3.5$ since $-1 \leq \sin 2x \leq 1$ $\sin 2x = -1 \Rightarrow x = \frac{3\pi}{4}$ is the only solution
	Obtains $\pm 2\sin^2 2x \mp 5\sin 2x \mp 7 (= 0)$ Accept $\pm 2\sin^2 2x \mp 5\sin 2x \mp 2 \mp 5 (= 0)$	1.1b	A1	
	Solves their quadratic equation for $\sin 2x$ Condone missing = 0	1.1a	M1	
	Explains that sin $2x \neq$ their 3.5 from a quadratic in sin2x with reference to the range of sine. For example: • $-1 \leq \sin 2x \leq 1$ • 3.5 > 1 • Sine can only have values between -1 and 1 inclusive. • Condone $\sin 2x \leq 1$	2.4	E1	
	Completes detailed reasoning to deduce the exact solution is $\frac{3\pi}{4}$ Must see $\pm 2\sin^2 2x \mp 5\sin 2x \mp 7 = 0$ $\sin 2x = -1$ and $\sin 2x = \frac{7}{2}$ Accept $\pm 2\sin^2 2x \mp 5\sin 2x \mp 2 \mp 5 = 0$	2.2a	R1	
	Subtotal		**5**	

	Question 6 Total		**7**	