1)

10 (i)	$\tan x = -1.33$	B1
	126.9	B1
	306.9	B1√
(ii)	$6\cos y + \frac{6}{\cos y} = 13$ or $\frac{6}{\sec y} + 6\sec y = 13$	B1
	Forms quadratic in cos$y$ or sec$y$ ($6\cos^2 y - 13\cos y + 6 = 0$)	M1
	Solve 3 term quadratic	M1
	48.2	A1
	311.8	A1√
(iii)	$2z - 3 = 0.775$ (or 2.37) radians	B1
	Solves for z using radians	M1
	1.89 and 2.68	A1 **[11]**

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2)

4	**(a)** Expresses with common denominator	M1
	$\frac{2\sin x}{\cos^2 x}$	A1
	$2\frac{\sin x}{\cos x}\frac{1}{\cos x} = 2\tan x\sec x$ or $2\tan x\frac{1}{\cos x} = 2\tan x\sec x$	A1 **ag**
	(b) $\cos x = \sqrt{1-p^2}$	B1
	$\text{cosec}\,2x = \frac{1}{\sin 2x}$	B1
	$\frac{1}{2p\sqrt{1-p^2}}$	B1 [6]

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3)

1	$\frac{1}{\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}}$	M1	M1 for adding fractions in terms of sin/cos/tan/cot correctly
	$= \frac{\sin\theta\cos\theta}{\sin^2\theta + \cos^2\theta}$	M1	M1 for use of correct identity
	$= \sin\theta\cos\theta$	A1 **[3]**	A1 for correct solution only
	OR		
	$\frac{\tan\theta}{\tan^2\theta + 1}$ or $\frac{\cot\theta}{\cot^2\theta + 1}$	M1	M1 for adding fractions in terms of tan/cot correctly
	$= \frac{\tan\theta}{\sec^2\theta}$ or $\frac{\cot\theta}{\text{cosec}^2\theta}$	M1	M1 for use of correct identity
	$= \sin\theta\cos\theta$	A1	A1 for correct solution only

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4)

2	$\sqrt{\dfrac{\sin^2\theta}{4\tan^2\theta}}$	B1 B1	B1 for numerator B1 for denominator
	$= \dfrac{\sin\theta}{2\tan\theta}$	M1	M1 for rearrangement
	$= \dfrac{\cos\theta}{2}, k = 0.5$	A1 [4]	
OR			
	$\sqrt{\dfrac{1-\cos^2\theta}{\dfrac{4}{\cos^2\theta}-4}}$	B1	
	$= \sqrt{\dfrac{1-\cos^2\theta}{\dfrac{4-4\cos^2\theta}{\cos^2\theta}}}$	B1	
	$= \dfrac{\cos\theta}{2}$	M1 A1	

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5)

7	**(a)** $\cot^2 x = \dfrac{1}{\tan^2 x}$	B1	
	$\text{cosec}^2 x = 1 + \cot^2 x$	B1	
	$= 1 + \dfrac{1}{p^2}$ or $\dfrac{p^2+1}{p^2}$	B1	
	OR Draw triangle with 1, p and $p^2 + 1$ correct B1		
	$\text{cosec}\, x = \dfrac{\sqrt{p^2+1}}{p}$ B1 $\quad \text{cosec}^2 x = \dfrac{p^2+1}{p^2}$ B1		
	(b) $\sec\theta = \dfrac{1}{\cos\theta}$	B1	
	Multiply out and correct use Pythagoras	M1	
	$\dfrac{\sin^2\theta}{\cos\theta}$	A1	
	$\dfrac{\sin\theta\sin\theta}{\cos\theta} = \sin\theta\tan\theta$	A1	
			[7]

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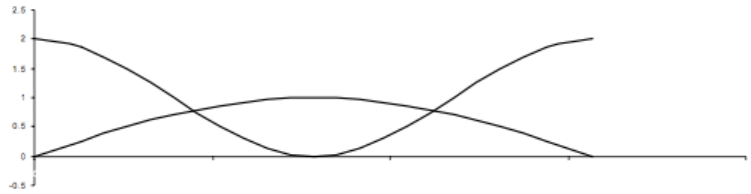
6)

2 **(i)** 		
Sine curve through (0, 0), (90, 1)(180, 0)		B1
Cosine curve through (0, 2), (45, 1), (90, 0), (135, 1), (180, 2)		M1 A1
(ii) 2		B1√
(iii) 2√		B1√ [5]

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7)

11 **(i)** $\tan\frac{1}{2}x=4$		B1
$\left(\frac{1}{2}x=\right)76$		B1
151.9 or 152		B1√
(ii) $\tan y\cos y=\sin y$ and $\cos^2 y=1-\sin^2 y$		B1
Solve quadratic		M1
$\sin y=0\Rightarrow y=180$		A1
36.9		A1
143(.1)		A1√
(iii) $\cos z=\pm\frac{\sqrt{3}}{2}$ or $\tan z=\pm\frac{1}{\sqrt{3}}$ or $\sin z=\pm\frac{1}{2}$		B1
$\frac{\pi}{6}$ and $\frac{11\pi}{6}$ or $\frac{\pi}{6}$ and $\frac{7\pi}{6}$ or $\frac{\pi}{6}$ and $\frac{5\pi}{6}$		B1
$\frac{5\pi}{6}$ and $\frac{7\pi}{6}$ or $\frac{5\pi}{6}$ and $\frac{11\pi}{6}$ or $\frac{7\pi}{6}$ and $\frac{11\pi}{6}$		B1 [11]

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8)

2 **(i)** Graphs	B1 B1 [2]	B1 for one correct curve B1 for a second correct curve consistent with the first curve
(ii) 3	√B1 [1]	Follow through on number of clear points of intersection

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9)

3	$\dfrac{\cos x(1+\sin x)+\cos x(1-\sin x)}{1-\sin^2 x}$ $\dfrac{2\cos x}{\cos^2 x}$ $2\sec x$	M1 DM1 M1 A1 [4]	M1 for attempt to get in terms of a single fraction DM1 simplifying numerator M1 simplifying denominator