14	**(a)**		Sector area $= \frac{1}{2}r^2x$ and Triangle $= \frac{1}{2}r^2\sin x$ Area segment $= \frac{1}{2}r^2(x-\sin x)$ $\frac{1}{2}r^2(x-\sin x) = 0.05\pi r^2$ $x-\sin x = 2\times 0.05\times\pi \Rightarrow x-\sin x-\frac{1}{10}\pi = 0$	**M1** **A1** **B1** **A1** **[4]**	**2.1** **2.1** **2.1** **2.1**	Both areas seen segment area found $0.05\pi r^2$ oe seen **AG** Must be fully shown and correct rearrangement	
14	**(b)**		$x_{n+1} = x_n - \dfrac{x_n-\sin x_n-\frac{1}{10}\pi}{1-\cos x_n}$	**B1** **[1]**	**1.1a**	$x_{n+1} =$ must be seen Algebraic form must be seen Derivative must be worked out	Condone x used instead of x_n in the fraction part.
14	**(c)**		$x_0 = 1.2$ $x_1 = 1.27245...$ $x_2 = 1.26895...$ $x_3 = 1.26894...$ So root is 1.269 to 3 dp	**M1** **A1** **A1** **[3]**	**1.1a** **1.1b** **2.2b**	3 iterations recorded The first 3 iterations correct Allow 1.27, 1.269 or more decimal places if correct.	 Root is 1.268947865 to 9 dp