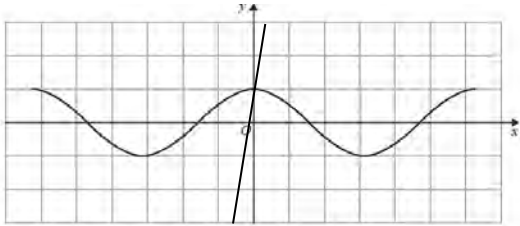


## Question 2 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		M1	This mark is given for plotting the line $y = 10x + 1$ on the diagram with a correct gradient and intercept
	Only one intersection means that there is one root.	A1	This mark is given for a reason why there is only one real root
(b)	$2\left(1 - \frac{(4x)^2}{2}\right) - 10x - 1 = 0$ $2 - 16x^2 - 10x - 1 = 0$	M1	This mark is given for using the small angle approximation $\cos 4x \approx 1 - \frac{(4x)^2}{2}$ in the given equation
	$16x^2 + 10x - 1 = 0$	M1	This mark is given for rearranging to find a quadratic equation to solve
	0.087 or -0.713 The solution is the positive value since the negative value is too great in magnitude to be used in the small angle approximation	A1	This mark is given for finding the correct (positive) solution for $x$ and justifying why it is the positive solution