

## A Level Maths – Predicted Paper 2B – 2023

Part	Working or answer an examiner might expect to see	Mark	Notes
1)	For example, for $x = 9.4$ $\lfloor 3x - 28 \rfloor = 0.2$ and $(x - 9) = 0.4$	M1	This mark is given for showing that the statement is not true for $9.25 < x < 9.5$
	The statement is sometimes true; For example, for $x = 12$ $\lfloor 3x - 28 \rfloor = 8$ and $(x - 9) = 3$	A1	This mark is given for a correct statement and an example where the statement is true

Question	Scheme	Marks	AOs
2(a)	$\frac{\sin 2\theta + \sin \theta}{\cos 2\theta + \cos \theta + 1} = \frac{2 \sin \theta \cos \theta + \sin \theta}{\dots} \text{ or } \frac{\dots}{2 \cos^2 \theta - 1 + \cos \theta + 1}$	M1	1.1b
	$\frac{\sin 2\theta + \sin \theta}{\cos 2\theta + \cos \theta + 1} = \frac{2 \sin \theta \cos \theta + \sin \theta}{2 \cos^2 \theta - 1 + \cos \theta + 1}$	M1	2.1
	$= \frac{\sin \theta (2 \cos \theta + 1)}{\cos \theta (2 \cos \theta + 1)} = \tan \theta$	A1*	2.2a
		(3)	
(b)	$\frac{\sin 2x + \sin x}{\cos 2x + \cos x + 1} = 2 \cos x \Rightarrow \tan x = 2 \cos x$ $\Rightarrow \sin x = 2 \cos^2 x = 2(1 - \sin^2 x)$	M1	3.1a
	$\Rightarrow 2 \sin^2 x + \sin x - 2 = 0$	A1	1.1b
	$\sin x = \frac{-1 \pm \sqrt{17}}{4} (0.780\dots, 1.280\dots) \Rightarrow x = \dots$	dM1	1.1b
	$x = 0.896, 2.246$	A1	1.1b
		A1	1.1b
		(5)	
(8 marks)			

# Pixl Maths Predicted Paper 2b Nov 2

**Léo Pomar**



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