Marked example 3

Paper 1 style · No calculator

3 7 marks SL 3.8 ●●● Demanding

Consider the equation $2\cos^2 x + 3\sin x - 3 = 0$, for $0 \leq x \leq 2\pi$.

(a) Show that the equation can be written as $2\sin^2 x - 3\sin x + 1 = 0$. **[2]**

(b) Hence solve the equation. **[5]**

MARKSCHEME (a)

$2(1 - \sin^2 x) + 3\sin x - 3 = 0$ **M1**

$-2\sin^2 x + 3\sin x - 1 = 0$ **A1**

$2\sin^2 x - 3\sin x + 1 = 0$ **AG**

Total 2 marks

MARKSCHEME (b)

$(2\sin x - 1)(\sin x - 1) = 0$ **M1**

$\sin x = \frac{1}{2}$ **A1**

$\sin x = 1$ **A1**

$x = \frac{\pi}{6}, \frac{5\pi}{6}$ **A1**

$x = \frac{\pi}{2}$ **A1**

Total 5 marks

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