

Question	Answer	Marks	Guidance
	Use the correct product rule and then the chain rule to differentiate either $\cos^3 x$ or $\sqrt{\sin x}$	M1	e.g. two terms with one part of $\frac{dy}{dx} = p \cos^2 x \sin x \sqrt{\sin x} + q \frac{\cos^3 x \cos x}{\sqrt{\sin x}}$.
	Obtain correct derivative in any form e.g. $\frac{dy}{dx} = -3 \cos^2 x \sin x \sqrt{\sin x} + \frac{\cos^3 x \cos x}{2\sqrt{\sin x}}$	A1 A1	A1 for each correct term substituted in the complete derivative.
	Equate their derivative to zero and obtain a horizontal equation with positive integer powers of $\sin x$ and/or $\cos x$ from an equation including $\sqrt{\sin x}$ or $\frac{1}{\sqrt{\sin x}}$ using sensible algebra.	M1	e.g. $-3 \cos^2 x \sin^2 x + \frac{1}{2} \cos^4 x = 0$
	Use correct formula(s) to express <i>their</i> equation/derivative in terms of one trigonometric function	M1	Can be awarded before the previous M1. May involve more than one trigonometric term.
	Obtain $7 \cos^2 x = 6$, $7 \sin^2 x = 1$, or $6 \tan^2 x = 1$, or equivalent, and obtain answer $x = 0.388$	A1	CAO. The question asks for 3 sf. Ignore additional answers outside $(0, \frac{\pi}{2})$. 22.2° is A0.
		6	