

Core Pure 2 Methods in Calculus

Use implicit differentiation to find the derivative of $\arcsin(x^2)$ for $0 \leq x < 1$

$$\text{Let } y = \arcsin(x^2)$$

$$y = \arcsin(x^2) \Rightarrow$$

$$\sin y = x^2 \Rightarrow$$

$$\cos y \frac{dy}{dx} = 2x \Rightarrow$$

$$\frac{dy}{dx} = \frac{2x}{\cos y} = \frac{2x}{\sqrt{1 - \sin^2 y}} = \frac{2x}{\sqrt{1 - x^4}}$$

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