



QUESTION WORKBOOK

Calculus with inverse trigonometric functions

Further calculus · Year FM

6 questions · 22 marks

PRINT EDITION

SECTION A · Warm-up

A1 Write down the derivatives of $\arcsin x$ and $\arctan x$. [2]

A2 Starting from $y = \arctan x$, so that $\tan y = x$, derive the derivative of $\arctan x$. [3]

SECTION B · Standard

B1 Find the gradient of the curve $y = \arcsin 2x$ at the point where $x = 1/4$. [3]

B2 Evaluate $\int 1/(4 + x^2) dx$ from 0 to 2, giving an exact answer. [4]

B3 Evaluate $\int 1/\sqrt{9-x^2} \, dx$ from 0 to $3/2$, giving an exact answer. [4]

SECTION C · Stretch

C1 Show that $\int (2x+4)/(x^2+2x+5) \, dx$ from -1 to 1 = $\ln 2 + \pi/4$. [6]