



QUESTION WORKBOOK

Reciprocal and inverse trigonometric functions

Trigonometry · Year 12–13

7 questions · 20 marks

PRINT EDITION

SECTION A · Warm-up

- A1** Define $\sec x$, $\operatorname{cosec} x$ and $\cot x$, and write down the exact values of $\sec 60^\circ$ and $\cot 45^\circ$. [2]

- A2** Starting from $\sin^2 \theta + \cos^2 \theta = 1$, derive the identity $\sec^2 \theta = 1 + \tan^2 \theta$. [2]

SECTION B · Standard

- B1** Given that $\tan \theta = 5/12$ with θ acute, find $\sec \theta$ and $\cos \theta$ exactly. [3]

- B2** Given that $\operatorname{cosec} \theta = 5/4$ with θ acute, find $\cot \theta$ and $\cos \theta$ exactly. [3]

B3 Solve $\sec x = 2$ for $0 \leq x < 360^\circ$.

[3]

SECTION C · Stretch

C1 State the range of values returned by $\arcsin$ and $\arccos$, and evaluate $\arcsin \frac{1}{2}$, $\arccos(-1)$ and $\arctan 1$ exactly, in radians.

[4]

C2 Solve $\cot x = \sqrt{3}$ for $0 \leq x < 360^\circ$, giving exact answers.

[3]
