Marked example 1

Paper 1 style · No calculator

1 5 marks AHL 3.9 ●○○ Routine

Find the exact value of

(a) $\sec \frac{2\pi}{3}$; [2]

(b) $\cot \frac{7\pi}{6}$; [2]

(c) $\operatorname{cosec}^2 \frac{\pi}{4}$. [1]

MARKSCHEME (a)

$\cos \frac{2\pi}{3} = -\frac{1}{2}$ M1

$\sec \frac{2\pi}{3} = -2$ A1

Total 2 marks

MARKSCHEME (b)

$\frac{\cos \frac{7\pi}{6}}{\sin \frac{7\pi}{6}} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}}$ M1

$\sqrt{3}$ A1

Total 2 marks

Note Or $\tan \frac{7\pi}{6} = \frac{1}{\sqrt{3}}$, then the reciprocal.

MARKSCHEME (c)

2 A1

Total 1 mark

Note $\sin \frac{\pi}{4} = \frac{1}{\sqrt{2}}$, so $\operatorname{cosec} \frac{\pi}{4} = \sqrt{2}$.

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