



A Level Mathematics Year 2 Exam Questions by Topic
Chapter 6: Trigonometric functions

These questions are taken from the Specimen Exam materials and the real 2018 papers for the new syllabus AS and A-level mathematics courses and arranged by chapter of the textbooks by Goldie et al (available here: <https://amzn.to/39umfr5> and <https://amzn.to/3hE8kBL>). There are a mixture of questions from OCR A, OCR B (MEI), Edexcel and AQA. Although the style of questions varies a little across the exam boards the content of the syllabus is almost identical so these are suitable for students preparing for any exam board.

Free problem sets for all other chapters, as well as video solutions, full past papers and other content for GCSE and A-level maths can be found at:

<https://mathsaurus.com/>

OCR B MEI 2018 Paper 1 Question 3:

3 In this question you must show detailed reasoning.

Solve the equation $\sec^2 \theta + 2 \tan \theta = 4$ for $0^\circ \leq \theta < 360^\circ$.

[4]

AQA Sample Paper 1 Question 13:

13 Prove the identity $\cot^2 \theta - \cos^2 \theta \equiv \cot^2 \theta \cos^2 \theta$

[3 marks]

AQA 2018 Paper 1 Question 12:

12 $p(x) = 30x^3 - 7x^2 - 7x + 2$

12 (a) Prove that $(2x + 1)$ is a factor of $p(x)$

[2 marks]

12 (b) Factorise $p(x)$ completely.

[3 marks]

12 (c) Prove that there are no real solutions to the equation

$$\frac{30 \sec^2 x + 2 \cos x}{7} = \sec x + 1$$

[5 marks]
