



# The Scottish Mathematical Council

www.scot-maths.co.uk

## MATHEMATICAL CHALLENGE 2017–2018

Entries must be the unaided efforts of individual pupils.

Solutions must include explanations and answers without explanation will be given no credit.

Do not feel that you must hand in answers to all the questions.

*CURRENT AND RECENT SPONSORS OF MATHEMATICAL CHALLENGE ARE*

*The Edinburgh Mathematical Society, The Maxwell Foundation, Professor L E Fraenkel,*

*The London Mathematical Society and The Scottish International Education Trust.*

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### Primary Division: Problems II

- P2.1.** A few days after his birthday, a retired mathematics teacher was musing. He realised that his age was a prime number. He then noticed that a year ago, his age was the product of 3 distinct prime numbers and, a year hence his age would be the product of a square and a cube. How old is he?
- P2.2.** Two adults, Uncle Jim and Mother, and two children, Nancy and Peggy, want to sail to Wild Cat Island. The boat is small and can only hold two individuals if they are **both** children. How can all four of them get to the island?
- P2.3.** John has a rectangular patio in his back garden. He increases both the length and the width of his patio by 20%.  
(a) What is the percentage increase in the perimeter of the patio?  
(b) What is the percentage increase in the area of the patio?

**END OF PROBLEM SET II**