



The Scottish Mathematical Council

www.scot-maths.co.uk

MATHEMATICAL CHALLENGE 2020–2021

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.** On a ski lift the chairs are equally spaced. They are numbered in order from 1. Kieran went skiing. He got in chair 10 to go to the top of the slopes. Exactly half way to the top, he passed chair 80 on its way down.
How many chairs were there on the ski lift?
Explain your reasoning.
- P2.2.** Katy writes down all of the integers from 1 to 1000 that have 4 as the sum of their digits.
(a) List all such numbers.
(b) Find the proportion of these numbers that are not prime.
- P2.3.** Lunnocks sell chocolate biscuits in packs of six, whereas Tees sell a similar type of biscuit, but only in packs of five. At a conference of mathematics teachers the organisers wish to provide exactly one biscuit per person at the coffee break. Can this be done for 58 people?
What is the largest number of people attending where it is not possible to purchase the exact number of biscuits required?
Explain your reasoning.

END OF PROBLEM SET II