



The Scottish Mathematical Council

MATHEMATICAL CHALLENGE 2007–2008

Entries must be the unaided efforts of individual pupils. Solutions must include explanations.

Answers without explanation will be given no credit.

CURRENT AND RECENT SPONSORS OF MATHEMATICAL CHALLENGE ARE

The Edinburgh Mathematical Society, Professor L E Fraenkel,

The London Mathematical Society and The Scottish International Education Trust.

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Primary Division: Problems II

- P2.1.** At the Post Office in the village of Prime it is only possible to buy 5p and 7p stamps. If just these stamps are available, it is clearly impossible to get all possible values of postage. For example, you are unable to buy stamps to the value of 1p, 2p, 3p, 4p, 6p, 8p or 9p. But what is the **largest** amount of postage you are **unable** to obtain in the stamps available?
Explain your answer.
- P2.2.** Mrs MacDonald has four sons. Sandy, who is the tallest, is older than Michael, who is the lightest. Calum is the oldest but is shorter than James who is the heaviest. No one has the same rank (first through to fourth) in more than one category. Rank the four boys in each category: Age, Height and Weight.
- P2.3.** Mr Green and his son Michael live next door to each other. Each has a big garden and his own mower. Mr Green can mow his lawn with the little mower in 45 minutes. His son Michael can handle the big mower and takes 30 minutes to do the same job. Last Saturday they were in a rush so they worked together using both mowers. How long did it take for them to mow the lawn?

END OF PROBLEM SET II