



# The Scottish Mathematical Council

## MATHEMATICAL CHALLENGE 2010–2011

**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, Professor L E Fraenkel,*

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

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### Primary Division: Problems II

**P2.1** There are 100 nuts on five trays:

- on trays 1 and 2 there are 52 nuts altogether;
- on trays 2 and 3 there are 43 nuts altogether;
- on trays 3 and 4 there are 34 nuts altogether;
- on trays 4 and 5 there are 30 nuts altogether.

How many nuts does each tray contain?

**P2.2** “Please may I have two boxes of matches at 9p each and two bars of soap at 27p each” said the customer in a small store. “I would also like three packets of sugar and six sausage rolls; however, I don’t know the price of the sugar or the rolls.”

“Thank you”, said the shop assistant, “ that will be £2.92 altogether.”

The customer thought for a few moments and then said, “That cannot be correct.”

How did she know?

**P2.3** Luke wanted to make 12 litres of orange squash for a party. He intended mixing 10 litres of water with 2 litres of concentrated orange. However he absent-mindedly confused the two values and mixed 10 litres of concentrated orange with 2 litres of water. How much of this mixture would he have to pour away before he would be able to add water to make the 12 litres of squash in the correct proportions?

**END OF PROBLEM SET II**