



The Scottish Mathematical Council

MATHEMATICAL CHALLENGE 2008–2009

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 I

- P1.1.** Rachel can get to and from the leisure centre by either walking or taking the bus. If she walks to the centre and takes the bus home, the travelling time is one hour. If she takes the bus both ways, then the travelling time is reduced to half an hour.
How long would it take her to walk to the centre and back?
Assume that the time for a particular journey is always the same.
- P1.2.** After taking part in a diving competition, and before the results were announced, the five girls who had taken part were discussing how they thought the competition had gone.
Alice said: “Beth was first; Deb was last.”
Beth said: “I was second; Alice was third.”
Claire said: “I was third; Deb was fourth.”
Deb said: “Beth was third; Alice was fourth.”
Emma said: “I was first; Claire was last.”
When the results were announced, there were no ties and it turned out that each girl had made one true statement and one false statement. Find the placings of the five girls and explain your reasoning.
- P1.3.** On his way home on Saturday night, generous Chick met three Big Issue sellers. To the first one he gave 10p more than half the money he had in his pocket. To the second one he gave 20p more than half of what he then had in his pocket. To the last one he gave 30p more than half of what was left in his pocket. When he got home, Chick had only 10p in his pocket. How much did he have when he started to make his way home?

END OF PROBLEM SET I