

The Scottish Mathematical Council

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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.

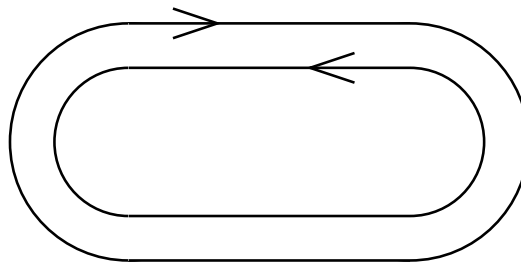
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Primary Division: Problems III

- P3.1.** Adam is now 9 years older than Brianna and 13 years ago he was twice as old as she was then. How old are Adam and Brianna now?

P3.2.



Trains on the Glasgow Subway depart every 4 minutes, and a complete circuit takes 24 minutes. Ewan sets off at 8.30 am on a train round in one direction at the same time as another train leaves in the opposite direction. How many trains will he pass on a complete circuit back to his starting station? (Do not count trains at the start or end station.)

- P3.3.** Some people think it is unlucky if the 13th day of a month falls on a Friday. Show that in every calendar year which is not a leap year, there will always be at least one such unlucky Friday but that there can be no more than three.

END OF PROBLEM SET III