

# The Scottish Mathematical Council

www.scot-maths.co.uk

## 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.*

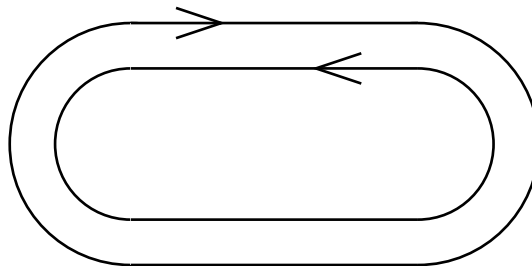
The Scottish Mathematical Council is indebted to the above for their generous support and gratefully acknowledges financial and other assistance from schools, universities and education authorities.

Particular thanks are due to the Universities of Aberdeen, Edinburgh, Glasgow, Heriot Watt, St Andrews, Stirling, Strathclyde and to Gryffe Academy, Kelvinside Academy and Northfield Academy.

### 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

CLOSING DATE FOR RECEIPT OF SOLUTIONS :

Friday 9 February 2018

Look on the SMC web site: [www.scot-maths.co.uk](http://www.scot-maths.co.uk) for information about Mathematical Challenge.



# Mathematical Challenge Problems III

PRIMARY DIVISION

2017-2018

**PLEASE USE CAPITALS TO COMPLETE**

SURNAME

OTHER NAME(S)  
(underline the one  
you prefer)

SCHOOL

AGE

YEAR OF STUDY

FOR OFFICIAL USE

Marker

Marks

1	2	3	Total

— — — — - **CUT ALONG HERE** — — — —

Please write your solutions on A4 paper and staple the above form to them.

**PLEASE WRITE YOUR NAME ON EVERY PAGE.**

Send your entry through your school to the organiser of the section.

For further information on the competition, please see the Information Circular, which has been distributed to all primary schools. Please contact the local organiser, whose name and address are given above, or go to the web site if you require a further copy.

---