Primary Mathematical Challenges

Welcome to Round 3 of the 2024-2025 Scottish Primary Mathematical Challenges. We hope that you and your pupils enjoyed Rounds 1 & 2 and would welcome feedback. This package contains

This Welcome Page (including Section Information) Round 3 Questions Information about Scottish Mathematical Council activities

The name of the Section Organiser is *not* on the question paper. Their details are on the website but are repeated here for convenience:

Section 1

Aberdeen City; Aberdeenshire; Highland; Moray; Orkney Islands; Shetland Islands; Western Isles Helen Martin (h.martin@abdn.ac.uk) Dept. of Curr. Studies, University of Aberdeen, Faculty of Education, MacRobert Building, Aberdeen AB24 5UA

Section 2

Angus; Clackmannanshire; Dundee City; Falkirk; Fife; Perth & Kinross; Stirling Rachel Norman (ran@cs.stir.ac.uk) Computing Science and Mathematics, University of Stirling, Stirling FK9 4LA

Section 3

East Lothian; Edinburgh City; Midlothian; Scottish Borders; West Lothian Scottish Mathematics Challenge, Andrina Inglis, Rm 3.06 Charteris Land, Moray House School of Education and Sport, St John's Street.Edinburgh EH8 8AQ (andrina.inglis@ed.ac.uk)

Section 4

Argyll & Bute; Dumfries & Galloway; East Ayrshire; East Dunbartonshire; East Renfrewshire; Glasgow City; Inverclyde; North Ayrshire; North Lanarkshire; Renfrewshire; South Ayrshire; South Lanarkshire; West Dunbartonshire John Winter (john.winter@strath.ac.uk) Lord Hope Building, 141 St James Road, Glasgow G4 0LT

The competition timetable for 2024-2025 is as follows:

Set No.	Last date for receipt of questions by schools	Last date for receipt of solutions from pupils	
Ι	Friday 23 August 2024	Friday 27 September 2024	
II	Friday 25 October 2024	Friday 22 November 2024	
III	Friday 10 January 2025	Friday 7 February 2025	

If there are organisational difficulties you may contact me: Bill Richardson (wpr3145@gmail.com).



The Scottish Mathematical Council

www.scot-maths.co.uk

MATHEMATICAL CHALLENGE 2024–2025

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,

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 Napier, Moray House, St Andrews, Stirling, Strathclyde and to George Heriot's School, Gryffe High School and Kelvinside Academy.

Primary Division: Problems III

P3.1. A group of children were playing a ring toss game. On their turn, each player tossed three rings at the three pegs, and every ring tossed landed on a peg. Sometimes there were two or three rings on the same peg. A ring over peg A is worth one point, over peg B three points and over peg C five points. Surprisingly, every child in the group had a different total score.

What is the largest possible number of children in the group?

P3.2. A triangle can be formed with sides of lengths 3, 4 and 6 cm but not with sides of lengths 3, 4 and 7 cm. Oliver has 8 sticks each with length a whole number of cm, but he cannot form a triangle with any 3 of them.

What is the shortest possible length of the longest stick?

P3.3. In a chemistry lab there are two bottles, each containing a mixture of acid and water:

bottle A contains 140 grams of which 10% is acid,

bottle B contains 60 grams of which 25% is acid.

The lab technician uses some of the mixture from each of the bottles to create a mixture with mass 120 grams of which 15% is acid. Then the lab technician mixes the remaining contents of the bottles to create a new mixture. What percentage of the new mixture is acid?

END OF PROBLEM SET III

CLOSING DATE FOR RECEIPT OF SOLUTIONS :

7 February 2025

Look on the SMC web site: www.scot-maths.co.uk for information about Mathematical Challenge.

There are archives of previous questions on: www.wpr3.co.uk/MC-archive/P/index-P.html

Here is a shortcut for your smartphone or tablet



SMC

Mathematical Challenge Problems III

PRIMARY DIVISION

2024-2025 **PLEASE U**

PLEASE USE CAPITALS TO COMPLETE

SURNAME		FOR OFFICIAL USE	
		Marker	
OTHER NAME(S) (underline the one you prefer)		Marks	
SCHOOL			
AGE	YEAR OF STUDY P		

$- \ - \ - \ C \ U \ T \quad A \ L \ O \ N \ G \quad H \ E \ R \ E \ - \ -$

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 School Materials which have been distributed to schools. A copy of these Materials can be obtained from

http://www.wpr3.co.uk/MC/materials/index.html

There are separate links for primary and secondary schools. This page also includes a list of authorities in each section and names and addresses of section organisers.

Scottish Mathematical Council Activities

For up-to-date information on the items below, please visit the SMC website

https://scottishmathematicalcouncil.org/

In due course this will contain information about:

SMC Challenges for Maths Week Scotland

SMC Conference in 2025

SMC Primary Journal

Work on this annual publication is ongoing and Issue 8 will be published in Spring 2025. Electronic versions of previous issues are available on the SMC website:

http://scottishmathematicalcouncil.org/resources-and-publications/

and then scroll down for the Primary Journals.