The Scottish Mathematical Council

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MATHEMATICAL CHALLENGE 2011−2012

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 I

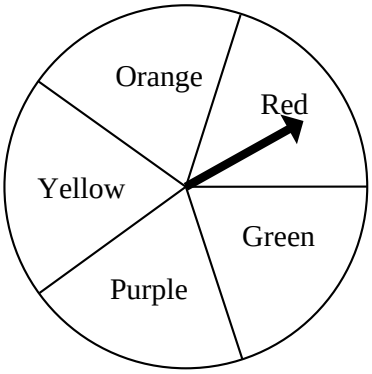
P1.1. Professor Trigg was asked how old he was.

He replied, " If you divide my age by 2, 3, 4 or 6, there is always 1 left over, but if you divide it by 7, there is no remainder."

How old is Professor Trigg?

Explain your reasoning.

P1.2.



Adam has found a spinner which has five colours on it where each colour is equally likely to come up. Adam decides to make his own.

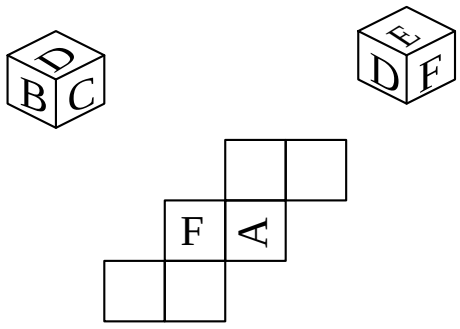
Adam's spinner has four colours − red, blue, orange and green. He wants it to satisify these conditions:

- red to come up half the time;
- red to come up twice as often as blue;
- and orange to come up twice as often as green.

What fraction of the new spinner should be coloured orange?

P1.3.

A cube has the letters A, B, C, D, E and F marked on the faces. Below are two views of the cube. Use these to complete the net. **Describe each of your steps.**



END OF PROBLEM SET I