The Scottish Mathematical Council

MATHEMATICAL CHALLENGE 2010–2011

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.

Primary Division: Problems I

P1.1. A lottery win is shared between three people. Allan gets 20 percent more than Jane, and 25 percent more than Charlie. Jane's share is £3,600. How much money does Charlie receive?

**P1.2.** You are in a party crossing the desert. The party has the following containers

- one 8 litre container which is full of water,
- one 5 litre container which is empty,
- one 3 litre container which is empty.

There are no other containers available.

It has been decided that the party should split up to follow two different routes, each group taking 4 litres of water. Is it possible to give each group 4 litres of water to continue their journey?
Explain your answer.

P1.3.
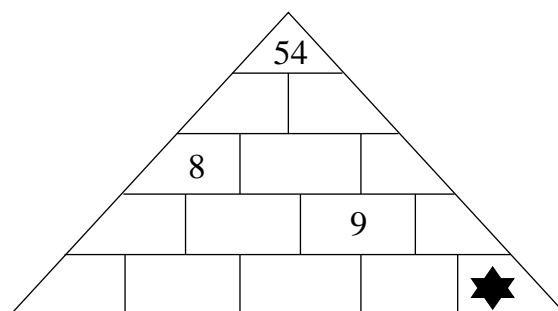
In each region of the triangle shown there is a whole number, three of which are given.
Each number is the sum of the two numbers immediately below it and all numbers are different.
Find out which number must be in the region marked with the star and explain why.

END OF PROBLEM SET I