EDITH COWAN UNIVERSITY
MATHEMATICS PROBLEM SOLVING PROGRAM

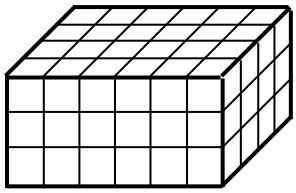
PROBLEMS TO BE SOLVED BY STUDENTS APPLYING FOR A PLACE IN THE 2012 PROGRAM

Advice to students:
*On the front page put your name, address, phone number, and your **current** school and school year.*
***The solutions must be completely your own work.** On the front page copy and sign this declaration:*
"I declare that the solutions are entirely my work. I have not used solution information from any other person or from the Internet."
Use A4 lined paper. Start each question on a new page. Put your name on the top right corner of each page. Explain, step by step, how you worked out each answer. Staple all the pages together in the top left corner.

Questions

1 The pages of a book are numbered at the bottom of each page. If the digit **4** is printed exactly 36 times in all of the page numbers, how many pages does the book have?

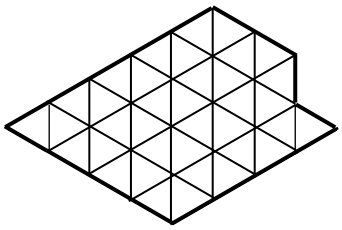
2 The block below is **6** units by **4** units by **3** units. It is made up of small cubes, each of which is 1 unit by 1 unit by 1 unit.



The outside has been painted blue. How many of the small cubes have **3** faces painted blue? How many of the small cubes have **0** faces painted blue?

3 4131 is a 4-digit number. Its digits are 4, 1, 3 and 1. The product of its digits is 4 × 1 × 3 × 1 = 12. List all the other 4-digit numbers for which the product of the digits is **8**.

4 The figure below contains triangles of various sizes. How many triangles of each size are there? How many triangles altogether are there in the figure?



5 To get from A to S on the map below you must go along the roads shown. Each section of road is 1km long. The path ABFLQRS goes from A to S and is 6km long. List **all** the other paths that also go from A to S and are 6km long.

A	B	C	D
E	F	G	H
K	L	M	N
P	Q	R	S

Send your solutions to:

Dr N Hoffman
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Bradford Street
Mount Lawley WA 6050

Deadline: 30 Sept. 2011