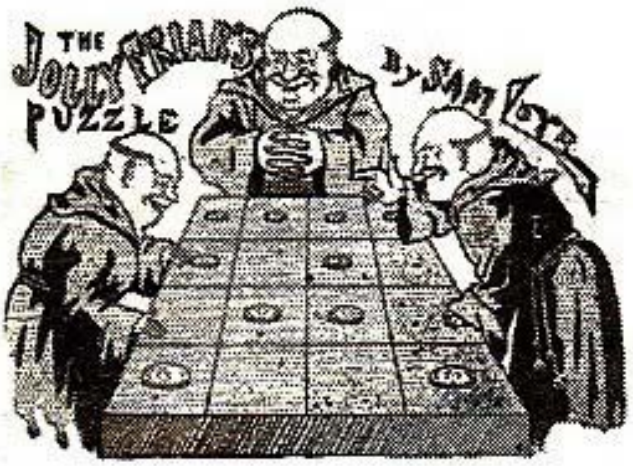
# DR MATHS

email: DRMaths@hotmail.co.uk

**Dear Dr Maths,**
**My son was asked to do this subtraction sum for homework and we are really stumped! Can you help?**
**abcde - fghi = 33333**
**Each letter representing a different number 1, 2, 3, 4, 5, 6, 7, 8, 9.**

**Susan, via e-mail**

This type of puzzle is called Crypt-arithmetic.
You are presented with a form of arithmetic operation but with letters replacing the digits.
To solve the puzzle you have to work out which digit is represented by each letter. The key is that you have to think about carry overs.
Two subtract nine gives a negative answer, but by making it twelve subtract nine it becomes possible to get a positive answer.
One solution to your problem is 41268 - 7935 = 33333.
There are other answers which work, can you find them?
I have always thought that puzzles are a great way to improve mathematical understanding. From a young age it is good for children to exercise their brain with puzzles. Studies of people aged over 65, who regularly exercised their brains with puzzles, found it could improve their memory by 10 years.
There are many great puzzle writers, such as Sam Loyd from the 19th Century, who wrote a number of excellent puzzle books. You can still buy his books or freely download his very visual puzzles




at www.samuelloyd.com
Here is a lovely Sam Loyd puzzle to exercise your brain.
In the picture above the Jolly friars have placed 10 coins, one coin to a cell, so that they form 10 rows, each row containing an even number of coins.
Rows may be counted horizontally, vertically, or diagonally. The puzzle is to rearrange the coins to form the largest possible number of even rows.
Write in with your answer and the first correct entry drawn will win a copy of "A Puzzle a Day" published by Tarquin. Well done to Mr Watson from Newcastle who correctly worked out the length of the staircase would be 3.92m.

■ **Do you have a maths question or problem? Write to Dr Maths, Evening Chronicle, Groat Market, Newcastle, NE1 1ED or e-mail DRMaths@hotmail.co.uk**