Readers

are invited to submit solutions to the following problems.

Solution should be typed and sent to:
The Editor
Mathematics medley,
c/o Department of Mathematics
National University of Singapore
Kent Ridge, Singapore 0511
and should arrive before April 30, 1995.

CONTEST

1. ***Between one to three book vouchers of S$50.00 each will be awarded to the best solution(s) submitted by secondary school students in Singapore for each of these problems.***

2. ***To qualify, secondary school students must include their full name, home address, telephone number, the name of their school and the class they are in, together with their solutions.***

3. ***The Editor's decision will be final and no correspondence will be entertained.***

Problem 1

Consider the equation $1/x - 1/y = 1/n$ where n is a given positive integer.

(i) For what values of n does this equation have at least one solution in positive integers x and y ? Justify your answer.

(ii) For what values of n does this equation have a unique solution in positive integers x and y ? Justify your answer.

Problem 2

Three persons Brett, Calvin and David played a card game as follows:

Two cards are dealt to each player, and each player puts into a pot an amount (in dollars) equal to the product of those cards (jacks, queens and kings count as 11, 12 and 13 respectively). A third card is then dealt and the one receiving the lowest third card wins all the money in the pot. The whole process is then repeated. When the game started, Brett had twice as much money as Calvin while David had three times as much. And on the last hand, David put half of the money he had in the pot, Brett put in one third of his money, and Calvin put in one-sixth. Each player drew a three as the last card, and thus they split the money in the pot equally. Then each player found that he had the same amount of money he began with.

Determine the amount of money each player began with.

Problems ? Corner