

The Flower Puzzle

by Manjil Saikia - Thursday, July 12, 2012

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Consider the following puzzle:

There are three temples say A, B and C. A priest takes with him some flowers and visits A. The flowers instantly double itself, and the priest keeps some of those flowers in A and proceeds towards B. At B also the same thing happens, the flowers with the priest double itself and he keeps some of them at B and goes to C. Similarly the flowers double itself at C and the priest now keeps all the flowers at C. It turns out that the number of flowers kept by the priest at each temple is exactly the same. How many flowers did the priest start with and how many did he keep at each temple?

The solution involves just simple manipulation of linear equations. Consider the flowers with the priest to be m initially. At A, they become $2m$, and suppose the priest keeps n of those at A and goes to B with $(2m-n)$ flowers. At B they become $(4m-2n)$, and since he has to again keep n of those at B, so the remaining flowers with him is now $(4m-3n)$. He then goes with those to C, where they double to become $(8m-6n)$. Since he leaves all the flowers at C, so we must have by the condition of the problem $8m-6n=n$ or $8m=7n$ or $\frac{m}{n}=\frac{7}{8}$. Thus one solution for (m,n) is $(7,8)$. There will be infinitely many such solutions.

An exciting exercise for the readers would be to generalize this problem.

[Communicated to the Editor by Ankush Goswami, NISER (Bhubaneswar) over a chat at IMSc, Chennai. Ankush is a final year student of the Integrated MSc programme at NISER and his interests are in analytic number theory.]

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