We summarize these results in the following.

Theorem. The solutions of (2) are as follows. If $p = q$, $f(x)$ is arbitrary and $g(x) = f(x)$. If $p \neq q$, the only monic solutions occur when $p = 2$ and $q = 1$, in which case $f(x)$ and $g(x)$ are defined by (12), where a is an arbitrary real constant. Non-monic solutions for that case can be found using (13).

As an example of these results suppose that $p = 3$ and $q = 4$. By (14) and (17) we have

$$\left\{\sum_{x=1}^{n}(4x^3 - 6x^2 + 4x - 1)\right\}^3 = \left\{\sum_{x=1}^{n}(3x^2 - 3x + 1)\right\}^4, \quad (n = 1, 2, 3, \cdots).$$

REFERENCE

1. Allison, "A Note on Sums of Powers of Integers," American Mathematical Monthly, Vol. 68, 1961, p. 272.

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A NUMBER PROBLEM

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There are infinite many numbers with the property: if units digit of a positive integer, M, is 6 and this is taken from its place and put on the left of the remaining digits of M, then a new integer, N, will be formed, such that N = 6M. The smallest M for which this is possible is a number with 58 digits (1016949 ··· 677966).

Solution: Using formula

$$\frac{6x}{1 - 4x - x^2} = 3\sum_{n=0}^{\infty} F_{3n}\, x^n ,$$

with $x = 0,1$ we have 1,01016949 ··· 677966, where the period number (behind the first zero) is M.*

*1016949152542372881355932203389830508474576271186440677966.

(Continued on p. 175.)