THE POWERFULL 1979

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(*A*) $1979 = 990^2 - 989^2$

(*B*) $1979 = 3^2 + 11^2 + 43^2 = 3^2 + 17^2 + 41^2$

$= 2^2 + 5^2 + 7^2 + 11^2 + 13^2 + 17^2 + 19^2 + 31^2$

(*C*) $1979 = 5^2 + 27^2 + 35^2$

$= 7^2 + 29^2 + 33^2$

$= 1^2 + 4^2 + 21^2 + 39^2$

$= 3^2 + 5^2 + 24^2 + 37^2$

$= 3^2 + 7^2 + 25^2 + 36^2$

$= 1^2 + 3^2 + 6^2 + 13^2 + 42^2$

$= 1^2 + 4^2 + 5^2 + 16^2 + 41^2$

$= 2^2 + 7^2 + 17^2 + 26^2 + 31^2$

$= 1^2 + 2^2 + 3^2 + 5^2 + 28^2 + 34^2$

$= 1^2 + 3^2 + 4^2 + 5^2 + 22^2 + 38^2$

$= 1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 18^2 + 40^2$

$= 1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 30^2 + 32^2$

$= 1^2 + 2^2 + 6^2 + 8^2 + 10^2 + 19^2 + 20^2 + 22^2 + 23^2$

$= 3^2 + 4^2 + 6^2 + 7^2 + 8^2 + 9^2 + 11^2 + 12^2 + 13^2 + 14^2 + 15^2 + 16^2 + 17^2 + 18^2$

These expressions, that involve the squares of all positive integers < 44, are just a few examples chosen from the multitude of partitions of 1979 into squares.

(*D*) $1979 = 2^3 + 3^3 + 6^3 + 12^3$

$= 1^1 + 13^2 + 8^3 + 6^4 + 1^5$

$= 2^0 + 2^1 + 2^3 + 2^4 + 2^5 + 2^7 + 2^8 + 2^9 + 2^{10}$

$= 2^{11} - 2^6 - 2^2 - 2^0$

$= -3^0 + 3^2 + 3^3 - 3^5 + 3^7$

$= 1^3 + 9^3 + 7^3 + 9^3 + 1^1 + 9^2 + 7^1 + 9^2 + 1 \cdot 9 \cdot 7/9$

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AN OBSERVATION CONCERNING WHITFORD'S "BINET'S FORMULA GENERALIZED"

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In [1], Whitford generalizes the Fibonacci sequence by modifying the defining equations of the Fibonacci sequence by letting

$$G_n = \frac{[(1 + \sqrt{p})/2]^n - [(1 - \sqrt{p})/2]^n}{\sqrt{p}} \qquad (n \geq 1).$$

This leads to a sequence whose defining equations are $G_1 = G_2 = 1$,

$$G_{n+2} = G_{n+1} + [(p - 1)/4]G_n \qquad (n \geq 1).$$

One can also use Whitford's Generalization of Binet's formula to obtain a generalization of the Lucas sequence. From [2], $L_n = \alpha^n + \beta^n$ $(n \geq 1)$, where $\alpha = (1 + \sqrt{5})/2$ and $\beta = (1 - \sqrt{5})/2$. By using Whitford's α and β, the Lucas sequence can be generalized by a sequence H_n, where