

The Amazing Matijasevic-Jones-Sato-Wada-Wiens Polynomial

The following polynomial in the 26 variables a, b, c...z, when evaluated for non-negative integer values of the variables, will generate all the prime numbers. However, it sometimes gives a negative result, in which case you must ignore it. But all positive results are guaranteed to be prime, and all primes can be generated for some non-negative integers a, b, c...z.

$$\begin{aligned} P = & (k + 2)\{1 - [wz + h + j - q]^2 \\ & + [(gk + 2g + k + 1)(h + j) + h - z]^2 \\ & + [16(k + 1)^3(k + 2)(n + 1)^2 + 1 - f^2]^2 \\ & + [2n + p + q + z - e]^2 + [e^3(e + 2)(a + 1)^2 + 1 - o^2]^2 \\ & + [(a^2 - 1)y^2 + 1 - x^2]^2 + [16r^2y^4(a^2 - 1) + 1 - u^2]^2 \\ & + [((a + u^2(u^2 - a))^2 - 1)(n + 4dy)^2 + 1 - (x + cu)^2]^2 \\ & + [(a^2 - 1)L^2 + 1 - m^2]^2 \\ & + [ai + k + 1 - L - i]^2 + [n + L + v - y]^2 \\ & + [p + L(a - n - 1) + b(2an + 2a - n^2 - 2n - 2) - m]^2 \\ & + [q + y(a - p - 1) + s(2ap + 2a - p^2 - 2p - 2) - x]^2 \\ & + [z + pL(a - p) + t(2ap - p^2 - 1) - pm]^2\} \end{aligned}$$

In great excitement I started to code it into EXCEL...until I spotted the snag. Can you see it?

RB, 5/11/07.

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