Perky People Prefer Pure Pseudorandom Periodicity

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G'day, mates!

Are the dual exponential congruential sequences

(a^n + b^n) mod c,
(c^n − a^n) mod b, and
(c^n − b^n) mod a, with

gcd(a,b,c)=1 and a<b<c<(a+b)

purely, ultimately, or not periodic?

It seems to me they are purely periodic since

(a^n + b^n) mod c = (dc + e + fc + g) mod c. That is,

(a^n + b^n) mod c = ((a^n) mod c + (b^n) mod c) mod c, and

both (a^n) mod c and (b^n) mod c are purely periodic. As for the title of this post, well, it's bloody five in the mornin', now, isn't it? So I apologize for that!

Doug Goncz
I love: Dona, Jeff, Kim, Kimmie, Mom, Neelix, Tasha, and Teri, alphabetically.
I drive: A double−step Thunderbolt with 657% range.
I fight terrorism by: Using less gasoline.