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86-08-21

Morris Newman,
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Dear Morris,

I will lecture in San Antonio on the Strong Law of Small Numbers. Neil Sloane's Handbook provides a number of illustrations for my theme. Here is one:

Sequence 930: 1,3,4,9,12,23,31,54,73,118,159,246,329,489,651,..., the number of ways in which the roots of a real polynomial of degree n can occur (e.g. $n = 3$: 3 distinct real; 3 real, 2 equal; 3 equal; 1 real, 2 complex: $\mu_3 = 4$). Problem E 2055, *Monthly* 75 (1968)188; solution 76 (1969)194. Expressible in terms of the partition function, so no great surprise that

Sequence 931: 1,3,4, ... , 246,340,500,684,984,1341,1883, ... A2513

of coefficients of a modular function should be so similar. Perhaps the surprise is that they differ at all? The difference, from term 13 on, is 11(1,1,3,4,9, 12,...), i.e. 11 times the original sequence (which original sequence?). Is there a further divergence from term 26 on? To those who know about modular functions (leave me out!), the numbers 11 & 13 are familiar. Is this a coincidence? an error? well-known to those who well know it? Can you explain A_8^{-1} (in $n = 26$) to me in words of one syllable? I'm too lazy to try to read and understand your two PLMS(3) 7 (1957) & 9(1959) papers!

Thanks in anticipation of your help! See you in Tucson?

Best wishes,

Yours sincerely,

Richard.

RKG:jw

Richard K. Guy.

φc. Neil Sloane.