Scan A5178

David Singmaster

letter

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Polytechnic of the South Bank

Borough Road
London SE1 OAA
01-928 8989

Department of Mathematical Sciences & Computing
Acting Head : P B Taylor MA MSc DIC FOR

3 October 1982

Neil Sloane
Room 2C-363
Bell Telephone Labs
Murray Hill, New Jersey,
07974, USA

Dear Neil Sloane,

I've just worked out some sequences that may interest you.

It is well known that the number of ways of packing a 2 × n board with dominoes is F_{n+1}, where the F_n are the Fibonacci numbers [illegible]

with $F_0 = 0$. I believe the following are well known, though I don't [illegible]

A5178

[illegible]

rectangle with dominoes satisfies f(n) = 4f(n-1) - f(n-2) with f(0) = 1, f(1) = 3, f(2) = 11. This sequence is 1160 in the Handbook, but you do not give a reference to its occurence in this context (though I haven't checked the Euler reference, but it seems unlikely that he did this).

A1835

The number of ways of packing a 4 × n rectangle with dominoes satisfies

[illegible]

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960, 268435456, 720, 1073741824, 840, 9216, 196608, 5184, 1260, ...

I can't remember where I got this from. Possibly by looking in Glaisher's Number-Divisor Tables.

Let $a_1 = 1$, $b_1 = 2$, $a_{n+1} = a_n + b_n$, b_{n+1} = least integer > b_n and which is not an a_i. The sequences go:

a_n	1	3	7	12	18	26	35	45	56	69	83	98	114	131	151	172	194	217	A5228
b_n	2	4	5	6	8	9	10	11	13	14	15	16	17	19	20	21	22	23	A30124

A friend gave this sequence to me, but he didn't say where it came from. It is very close to your sequence 1042 and 355. It seems like it should be related to Beatty and/or Wythoff, but I haven't really tried to find such a relation.

At one time I wrote down the following sequences. A20639

Smallest prime factor of n: 2, 3, 2, 5, 2, 7, 2, 3, 2, 11, 2, 13, 2, 3, 2, ...

These would be the first factors which cancel the corresponding number in carrying out the Sieve of Erastothenes.

Largest prime factor of n: 2, 3, 2, 5, 3, 7, 2, 3, 5, 11, 3, 13, 7, 5, 2, 17,..

A6530

Regards,

David Singmaster