

Scan

(delicate)

~~A3477~~

A3471

+ many

John Riordan

~~Q~~ 2 letters + 2
~~WJH~~ 1974 pages

5 pages

add to many sequences
many

(8) for

WAS

Neil Sloane, Esq.

Beil Laboratories

Murri Hill, New Jersey 07974

Dear Neil:

Thanks for sending the Lucas pages so promptly. In trying to make sense of them, I ran into the following, for the Handbook

1. The number of permutations of n in which no two consecutive numbers are adjacent is $A_n(0)$ of I.C.A., prob 9 of chap 9 of Lucas' and does not appear in the Handbook

3168
459
3471

n 3 4 5 6 7 8
= $A_n(0)$ 0 4 16 80 672 4752 48768 440192 5380160
 $A_9(0)$ is given incorrectly in I.C.A. as 528

2. Some time ago, working over Cayley on partitions, I ran into the sum $\binom{n+1}{n} = \sum a_{nk} \binom{n}{k}$, which entails $a_n(x) = 2a_{n-1}(x) + xa_{n-2}(x)$, $a_0(x)=1$, $a_1(x)=1+2x$, $a_n(1)$ is sequence A1333, $a_{n0} = 2^n$

and $a_{n1} = (n+1)2^{n-1}$ is sequence 1100. Should it be noted that 1100 is $(n+1)2^{n-1}$? A1792

N1339 The same polynomial with $a_0(x)=1$, $a_1(x)=2$, has $a_n(1)$ as sequence 532, $a_{n1} = (n-1)2^{n-2}$ as 1318, $a_{n2} = \binom{n-2}{2}2^{n-4}$ as 1729, $\binom{n-3}{3}2^{n-6} = a_{n3}$ as 11163, $a_{n4} = \binom{n-4}{4}2^{n-8}$ as 1032, 3440 = A3472. For these have $a_{nk} = \binom{n-k}{k}2^{n-k-k}$

A3471 2083
A316 3470
A459 3481
A1788 3482
Oct. 24, 1974 A1818
A3472 A248
A245094 A1792
A259859 A1333

A129
A59300
A1858
A138464

A1862

1297 = 2083

3470
3481
3482

Nov 14, 1974

~~208~~

Mr. S. L. Esg.

Bell Laboratories

Murray Hill, New Jersey 07974

Dear Mr. Esg.

Here are some more sequences (promised in my letter

of 12477)

N297

1. Random Tournaments sequence 297. I ran into the paper by Capell & Narayana which you reference and found they had neglected the simple recurrences implicit in their definitions. If T_n is the number, their definitions may be compressed to

$T_1 = 1, T_2 = 1, T_{n+2} = 2T_{n+1} - T_n$ for $n \geq 2$

$T_{2n+1} = 2T_{2n} - T_{2n-1}$ for $n \geq 1$

T_n	1	1	2	3	6	11	21	41	81
T_{2n}	1	3	10	33	105	348	1155	3951	13167

A2083

2. If d_n is the number of divisors of n , then $d_{2n} = 2d_n$

$d_1 = 1, d_2 = 2, d_3 = 2, d_4 = 3, d_5 = 2, d_6 = 4, d_7 = 2, d_8 = 4, d_9 = 3, d_{10} = 4$

$d_n = (n/2) + 1$ for n odd

$d_n = (n/2) + 1$ for n even

$d_n = (n/2) + 1$ for n odd

$d_n = (n/2) + 1$ for n even

d_n	1	2	3	4	5	6	7	8	9
d_{2n}	2	4	6	8	10	12	14	16	18

A3470

A259859

A3470

(3)

imply

3470 =

N1109.5

3470

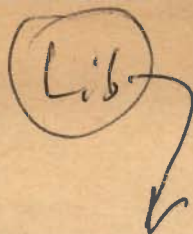
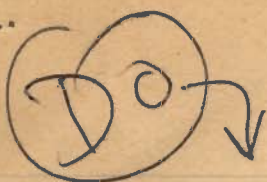
791

N297 7083

cut

3470

from Jordan's letter but not used



2.

3. A paper by SM Tanny and M. Zisker, *Discrete Math.*, 79:81 (1991).

Discrete Math., 79:81 (1991).

Discrete Math., 79:81 (1991).

$$3451^2 = 11905501$$

$$3452^2 = 11915304$$

3 4 5 6 7 8 9
143 986 6764 46367 317816 2178368 19930351

$$3453^2 = 11925109$$

$$3454^2 = 11934916$$

$$3455^2 = 11944725$$

$$3456^2 = 11954536$$

$$3457^2 = 11964349$$

$$3458^2 = 11974164$$

$$3459^2 = 11983981$$

$$3460^2 = 11993796$$

$$3461^2 = 11993611$$

$$3462^2 = 12003428$$

$$3463^2 = 12013247$$

$$3464^2 = 12023068$$

$$3465^2 = 12032891$$

$$3466^2 = 12042716$$

$$3467^2 = 12052543$$

$$3468^2 = 12062372$$

$$3469^2 = 12072203$$

$$3470^2 = 12082036$$

$$3471^2 = 12091871$$

$$3472^2 = 12101708$$

$$3473^2 = 12111547$$

$$3474^2 = 12121388$$

$$3475^2 = 12131231$$

143 986 6764 46367 317816 2178368 19930351

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⑧

+ Enclose two tables which might have been included in

Fig. 10 of the book. The first table is for the first

two terms of the second term of the first

two terms of the second term of the first

A1818

1997

3.

Your question 1997, for which the reference is Central Factorial

Number of Prime Identities, 219. The actual value is $(2 \cdot 10^{10})^2$

is $(2 \cdot 10^{10})^2$ which is 233. The actual value is $(2 \cdot 10^{10})^2$

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Yours

John

Roots and
 $h(x) = Y_n(x)$
 $h(x) =$

7-10-55
mx

$\sum (a_i) x_i^{h_i} x_i^{k_i}$
+ constant

$L_n(x)$ 1 1 3 10

$h_n(x)$ 1 1 2 3

0 1 2 3

#1729

2 1 2 3

$N_n(x)$

3 1 6 1

h_n

4 1 1 1

5 1 1 1

6 1 1 1

7 1 1 1

11

$L_n(x)$

1 2 7

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

1 1 3

Base 1140

Base 11729

Base 11730

Base 11864

Base 11864

Base 11864

