Scan A3105
+
many

H P Robinson
letter +
enclosures
Jan 4 1974

3105
2865
46042
3106
3107
3108
3113
3114

Herman P. Robinson
31 Diablo Circle
Lafayette, CA 94549
(415) 283-1861

4 January 1974

Dr. Neil J.A. Sloane
Bell Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974

Dear Neil:

Yesterday I learned that you will be giving a talk on Friday, the 11th, at UC. Naturally, I plan to be there, with a copy of your Handbook to autograph, It came last week. Elinor Potter has received hers, and we are both very pleased to get them. Your book is lots of fun to browse through, too.

My daughter, Lois, and I started to check those sequences which Elinor and I previously checked. I'll send you a list of them eventually.

On page 2 under 1.4 References, 4th line, the word "be" has been omitted between "to" and "used". In Seq. 82, brackets have been omitted from the defining expression. The manuscript was OK in both cases. In Seq. 106 I assume the change of reference from GU5 to GU8 was deliberate. yes
More later when we've done more checking.

Several sequences are enclosed for you. There are two from Lehmer, and they are coefficients of x^n in the expansion of "Permanents". I never heard the term before, but Lehmer says theyare what you get expanding the determinant in minors without regard to sign. Only one of these is represented by a partition. A2865

One of the sequences is an extension of Seq. 113 in your catalog. All would be easy to produce with ALTRAN, and perhaps you have done so already. One hundred terms is a practical limit for me, using the Wang calculator.

I would like to know how much time you will spend out here. When do you arrive? What flight? Will someone meet you at the airport? If not, I'll be glad to do so. What hotel will you stay at? Etc., etc. Don't expect good weather. We've hardly seen the sun for ages, and yesterday it snowed.

Sincerely,

Herman

~~Too slow~~

~~Omit~~

A46042

PARTITIONS INTO FOURTH POWERS

n	$p(n)$	n	$p(n)$
0	1		
1	1	51	4
2	1	52	4
3	1	53	4
4	1	54	4
5	1	55	4
6	1	56	4
7	1	57	4
8	1	58	4
9	1	59	4
10	1	60	4
11	1	61	4
12	1	62	4
13	1	63	4
14	1	64	5
15	1	65	5
16	2	66	5
17	2	67	5
18	2	68	5
19	2	69	5
20	2	70	5
21	2	71	5
22	2	72	5
23	2	73	5
24	2	74	5
25	2	75	5
26	2	76	5
27	2	77	5
28	2	78	5
29	2	79	5
30	2	80	6
31	2	81	7
32	3	82	7
33	3	83	7
34	3	84	7
35	3	85	7
36	3	86	7
37	3	87	7
38	3	88	7
39	3	89	7
40	3	90	7
41	3	91	7
42	3	92	7
43	3	93	7
44	3	94	7
45	3	95	7
46	3	96	8
47	3	97	9
48	4	98	9
49	4	99	9
50	4	100	9

H.P. Robinson 10 December 1973

3105

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9 December 1973

N89.5
= 3105

Partitions of n in which terms are restricted to those of form $6m \pm 1$

n	C_n	n	C_n
0	1	50	436
1	1	51	476
2	1	52	520
3	1	53	569
4	1	54	622
5	2	55	679
6	2	56	739
7	3	57	804
8	3	58	875
9	3	59	953
10	4	60	1038
11	5	61	1128
12	6	62	1224
13	7	63	1327
14	8	64	1439
15	9	65	1562
16	10	66	1694
17	12	67	1835
18	14	68	1985
19	16	69	2146
20	18	70	2321
21	20	71	2510
22	23	72	2714
23	26	73	2931
24	30	74	3162
25	34	75	3410
26	38	76	3677
27	42	77	3966
28	47	78	4275
29	53	79	4605
30	60	80	4956
31	67	81	5331
32	74	82	5735
33	82	83	6169
34	91	84	6634
35	102	85	7129
36	114	86	7655
37	126	87	8217
38	139	88	8819
39	153	89	9465
40	169	90	10155
41	187	91	10889
42	207	92	11669
43	228	93	12500
44	250	94	13389
45	274	95	14340
46	301	96	15354
47	331	97	16431
48	364	98	17575
49	399	99	18792
		100	20091

PARTITIONS INTO NUMBERS OF FORM 5m+2 and 5m+3

N92.5

=3106

n	p(n)	n	p(n)
0	1		
1	0	51	739
2	1	52	820
3	1	53	899
4	1	54	997
5	1	55	1091
6	2	56	1207
7	2	57	1321
8	3	58	1457
9	3	59	1593
10	4	60	1756
11	4	61	1916
12	6	62	2108
13	6	63	2301
14	8	64	2525
15	9	65	2753
16	11	66	3019
17	12	67	3287
18	15	68	3599
19	16	69	3917
20	20	70	4281
21	22	71	4655
22	26	72	5084
23	29	73	5521
24	35	74	6021
25	38	75	6537
26	45	76	7118
27	50	77	7721
28	58	78	8401
29	64	79	9103
30	75	80	9894
31	82	81	10715
32	95	82	11631
33	105	83	12587
34	120	84	13653
35	133	85	14761
36	152	86	15995
37	167	87	17285
38	190	88	18710
39	210	89	20203
40	237	90	21854
41	261	91	23579
42	295	92	25483
43	324	93	27480
44	364	94	29671
45	401	95	31975
46	448	96	34502
47	493	97	37153
48	551	98	40058
49	604	99	43114
50	673	100	46447

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Partitions into Fibonacci Parts

N200.8
= 3107

n	P(n)	n	P(n)
0	1		
1	1	51	4017
2	2	52	4367
3	3	53	4737
4	4	54	5134
5	6	55	5564
6	8	56	6016
7	10	57	6504
8	14	58	7025
9	17	59	7575
10	22	60	8171
11	27	61	8797
12	33	62	9466
13	41	63	10183
14	49	64	10936
15	59	65	11744
16	71	66	12599
17	83	67	13502
18	99	68	14471
19	115	69	15486
20	134	70	16568
21	157	71	17715
22	180	72	18921
23	208	73	20207
24	239	74	21559
25	272	75	22987
26	312	76	24506
27	353	77	26094
28	400	78	27782
29	453	79	29558
30	509	80	31425
31	573	81	33405
32	642	82	35478
33	717	83	37664
34	803	84	39973
35	892	85	42386
36	993	86	44939
37	1102	87	47613
38	1219	88	50421
39	1350	89	53384
40	1489	90	56478
41	1640	91	59735
42	1808	92	63154
43	1983	93	66727
44	2178	94	70492
45	2386	95	74422
46	2609	96	78543
47	2854	97	82871
48	3113	98	87383
49	3393	99	92122
50	3697	100	97075

$$\frac{1}{(1-x)^{2}(1-x^{2})}$$

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PARTITIONS INTO CUBES

N76.5

n	P(n)		n	p(n)	
0	1		51	11	3 =3108
1	1		52	11	
2	1		53	11	
3	1		54	12	
4	1		55	12	2
5	1		56	13	
6	1		57	13	3
7	$\boxed{1}$		58	13	
8	2		59	14	
9	2		60	14	3
10	2		61	14	
11	2		62	15	2
12	2		63	15	0
13	2		64	17	
14	2	8	65	17	3
15	2		66	17	
16	3		67	18	
17	3		68	18	3
18	3		69	18	
19	3		70	19	
20	3		71	19	
21	3		72	21	
22	3		73	21	
23	3	8	74	21	
24	4		75	22	
25	4		76	22	
26	4	3	77	22	
27	5		78	23	
28	5		79	23	
29	5		80	25	
30	5		81	26	
31	5	5	82	26	
32	6		83	27	
33	6		84	27	
34	6	3	85	27	
35	7		86	28	
36	7		87	28	
37	7		88	30	
38	7	5	89	31	
39	7		90	31	
40	8		91	33	
41	8		92	33	
42	8	3	93	33	
43	9		94	34	
44	9		95	34	
45	9	5	96	36	
46	9		97	37	
47	9		98	37	
48	10		99	39	
49	10		100	39	
50	10	3			

H.P. Robinson 10 December 1973

B - 3113

N 93.5 = 3113

	0	1	2	3	4
0	2	1	2	2	3
1	7	8	10	11	15
2	28	31	38	42	51
3	89	99	115	129	149
4	244	272	309	344	391
5	611	676	760	839	939
6	1422	1565	1738	1913	2119
7	3120	3421	3768	4126	4541
8	6535	7133	7813	8518	9316
9	13164	14311	15594	16943	18440
10	25636	27781	30143	32637	35385
11	48506	52399	56660	61161	66077
12	89481	96392	103901	111861	120487
13	161382	173421	186417	200201	215078
14	285265	305839	327973	351435	376650
15	495174	529778	566870	606198	648304
16	845467	902840	964136	1029089	1098458
17	1422003	1515822	1615829	1721710	1834510
18	2358853	2510392	2671570	2842116	3023395
19	3863305	4105323	4362216	4633811	4922003
20	6252982	6635372	7040622	7468662	7922111
21	10010229	10608475	11241523	11909643	12616342
22	15861614	16788998	17768946	18802295	19893913
23	24893371	26318491	27822577	29407235	31079206
24.	38717581	40889802	43179767	45590483	48131125
25	59710480	62996166	66456239	70095830	73927697
26	91352343	96286155	101476834	106932495	112670845
27	138709039	146066879	153800707	161923335	170459084

From D. H. Lehmer: Coefficients of x^n in expansion of "Perma

5	6	7
3	5	5
16	20	23
57	67	75
166	192	213
433	489	543
1038	1157	1276
2328	2576	2826
4965	5453	5960
10150	11085	12064
20015	21764	23601
38280	41461	44825
71282	76947	82949
129630	139536	150029
230843	247839	265865
403391	432089	462523
692941	740712	791332
1171933	1250350	1333421
1953933	2081066	2215641
3215167	3418938	3634434
5226590	5549650	5891053
8400992	8908069	9443472
13362028	14150541	14982341
21044721	22260036	23541032
32840425	34698099	36654529
50805184	53622676	56587472
77957509	82199158	86659127
118701061	125042201	131704612
179422284	188839413	198726251

ent" $P(x) = \left| \begin{matrix} 1 & 1 & 0 & 0 & 0 & \cdots \\ 1 & 1 & x^{1/2} & 0 & 0 & \\ 0 & x^{1/2} & 1 & x & 0 & \\ 0 & 0 & x & 1 & x^{3/2} & \\ 0 & 0 & 0 & x^{3/2} & 1 & \\ \vdots & & & & & \end{matrix} \right|$

B

311-3

	0	1	2	3	4
28	209111585	220013037	231461655	243477083	256093092
29	313110606	329162129	346005859	363671018	382204416
30	465809790	489304973	513940971	539761106	566829855
31	688721737	722919019	758750792	796280387	835597028
32	1012340066	1061846341	1113683494	1167942681	1224747098
33	1479688470	1550988242	1625596336	1703643442	1785298881
34	2151200385	2253381327	2360236864	2471952746	2588761980
35	3111403101	3257147386	3409468930	3568629243	3734948218
36	4478038966	4684974791	4901126351	5126860418	5362614511
37	6414471240	6707007027	7012403766	7331172756	7663912036
38	9146501112	9558306708	9987991921	10436264912	10903941065
39	12985088480	13562443495	14164562371	14792422421	15447131744
40	18356956103	19163251710	20003722629	20879711355	21792721517
41	25845688252	26967461912	28136236239	29353846477	30622327734
42	36246758078	37801763511	39421190208	41107538838	42863555772
43	50640999668	52788964471	55024940268	57352321517	59774807176
44	70492438540	73449365966	76526154241	79727393324	83058052715
45	97778205088	101835342673	106055217004	110444016143	115008398632
46	135160612140	140709540600	146478763126	152476595473	158711940321
47	186214509608	193780245027	201643331883	209814909237	218306851638
48	255726934660	266011504803	276696314371	287796243856	299327092362
49	350091116967	364030784684	378507715867	393541733174	409153812167
50	477823354743	496663591927	516223123969	536528283444	557606854804
51	650239548132	675633057117	701987090004	729336540523	757718127171
52	882338778207	916473359667	951887384979	988626976282	1026740556885
53	1193954835551	1239719840461	1287184950343	1336410977917	1387461644636
54	1611253825875	1672456400820	1735912685527	1801702679829	1869910055614
55	2168677924793	2250323371682	2334949491812	2422661286350	2513568402264

From D. H. Lehmer

5	6	7
165815024	174371737	183349841
247285728	259838176	272999466
366478527	384787216	403970936
539882486	566440997	594250815
790803088	829127353	869232144
1152031869	1207057290	1264604548
1669508159	1748133258	1830314358
2407322949	2519151340	2635972286
3454533847	3612882310	3778211452
4934414559	5157678884	5390665244
7016967099	7330467182	7657455224
9935795636	10374258823	10831365903
4010791946	14621686454	15258260402
9678543433	20526540374	21409785460
7532977786	28705905260	29927054632
8379538393	39996306251	41678833431
3307199971	55528320351	57838835988
3783951616	76825467126	79988143048
1783071890	105934950884	110250562910
9949713355	145600087168	151471096800
1820140687	199487159325	207450672963
2109590337	272483197503	283254174286
7089371145	371085966295	385613737815
5079784772	503913587260	523455631418
7093047960	682369072026	708587099466
7670102172	921505038176	956589884950
5967558314	1241146612833	1287980250387
7166722493	1667346717281	1729711991432

B

311-3

	0	1	2	3	4
28	209111585	220013037	231461655	243477083	25609309
29	313110606	329162129	346005859	363671018	38220441
30	465809790	489304973	513940971	539761106	56682985
31	688721737	722919019	758750792	796280387	83559702
32	1012340066	1061846341	1113683494	1167942681	122474709
33	1479688470	1550988242	1625596336	1703643442	178529888
34	2151200385	2253381327	2360236864	2471952746	258876198
35	3111403101	3257147386	3409468930	3568629243	373494821
36	4478038966	4684974791	4901126351	5126860418	5362614511
37	6414471240	6707007027	7012403766	7331172756	7663912036
38	9146501112	9558306708	9987991921	10436264912	10903941065
39	12985088480	13562443495	14164562371	14792422421	15447131744
40	18356956103	19163251710	20003722629	20879711355	21792721517
41	25845688252	26967461912	28136236239	29353846477	30622327734
42	36246758078	37801763511	39421190208	41107538838	42863555772
43	50640999668	52788964471	55024940268	57352321517	59774807176
44	70492438540	73449365966	76526154241	79727393324	83058052715
45	97778205088	101835342673	106055217004	110444016143	115008398632
46	135160612140	140709540600	146478763126	152476595473	158711940321
47	186214509608	193780245027	201643331883	209814909237	218306851638
48	255726934660	266011504803	276696314371	287796243856	299327092362
49	350091116967	364030784684	378507715867	393541733174	409153812167
50	477823354743	496663591927	516223123969	536528283444	557606854804
51	650239548132	675633057117	701987090004	729336540523	757718127171
52	882338778207	916473359667	951887384979	988626976282	1026740556885
53	1193954835551	1239719840461	1287184950343	1336410977917	1387461644636
54	1611253825875	1672456400820	1735912685527	1801702679829	1869910055614
55	2168677924793	2250323371682	2334949491812	2422661286350	2513568402264

5	6	7
269331256	283228293	297808201
401638421	422023594	443395735
595194981	624926521	656076762
876769932	919895929	965051088
1284196678	1346424616	1411540394
1870705549	1960047018	2053478985
2710866734	2838519415	2971940600
3908710764	4090262578	4279913911
5608787513	5865852798	6134243372
8011176130	8373611603	8751820554
11391788478	11900687304	12431470361
16129749018	16841470757	17583442561
22744204760	23735783521	24769028250
31943663843	33320048191	34753624654
44691941380	46595655337	48577611802
62296058088	64920057848	67650755321
86523080231	90127822924	93877613180
119755029348	124691070402	129823697190
165193745378	171931580634	178935074091
227131138232	236300524018	245827889178
311304850989	323746483139	336669168255
425365237951	442198518643	459676508684
579487098027	602198808036	625772308264
787169273573	817729337021	849438445352
1066277559273	1107289858186	1149830429832
1440402093603	1495300548130	1552226779710
1940620459661	2013923433169	2089910651724
2607783185445	2705422913647	2806607779628

N93.2 = 3114

3114

		0	1	2	3	4
	0	1	1	1	1	2
	1	4	5	6	7	9
	2	17	19	23	26	31
	3	54	61	70	79	91
	4	149	167	189	211	239
	5	374	415	465	515	575
	6	871	961	1065	1174	1299
	7	1913	2100	2311	2533	2785
	8	4010	4380	4794	5231	5717
	9	8080	8790	9573	10406	11322
80	10	15742	17066	18512	20050	21732
	11	29796	32196	34806	37582	40594
	12	54979	59239	63843	68747	74040
	13	99180	106595	114573	123061	132193
	14	175351	188019	201611	216059	231545
	15	304433	325740	348527	372738	398613
	16	519878	555196	592872	632854	675492
	17	874520	932269	993752	1058930	1128282
	18	1450863	1544145	1643259	1748235	1859723
	19	2376499	2525470	2683483	2850658	3027926
160	20	3846936	4082314	4331616	4595102	4874066
	21	6159090	6527357	6916854	7328129	7762967
	22	9760277	10331164	10934191	11570313	12242071
	23	15319265	16196588	17122250	18097808	19126818
	24	23828633	25165957	26575419	28059577	29623383
	25	36751595	38774504	40904379	43145200	45503978
	26	56231292	59269053	62464475	65823597	69356239
	27	85387435	89917918	94679295	99680730	104935934

From D.H. Lehmer: These are partitions of form $5m \pm 1$. of x^n in the expansion of the "Perman

5	6	7
2	3	3
10	12	14
35	41	46
102	117	131
266	299	333
637	709	783
1429	1579	1735
3049	3345	3659
6233	6804	7409
12294	13363	14498
23519	25466	27540
43802	47276	50974
79672	85749	92214
141904	152337	163437
248009	265639	284375
426091	455446	486610
720724	768926	820060
1201792	1279966	1362800
1977764	2103085	2235735
3215417	3414139	3624287
5168844	5480820	5810390
8221992	8707179	9219227
12950519	13698416	14487007
20211076	21354418	22558864
31269686	33003926	34829259
47985097	50596176	53342158
73069154	76972981	81075195
110455009	116252940	122340836

They are also the coefficients

ent" $P = \begin{vmatrix} 1 & \sqrt{x} & 0 & 0 & \cdots \\ \sqrt{x} & 1 & x & 0 & \\ 0 & x & 1 & x^{3/2} & \\ 0 & 0 & x^{3/2} & 1 & \ddots \end{vmatrix}$

HPR.

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		0.	1	2	3	4	
	28	128734984	135447703	142496649	149895397	157663227	
	29	192772053	202656472	213027880	223906118	235318108	
240	30	286801421	301270312	316440703	332341516	349010233	
	31	424074008	445134455	467200332	490313245	514525489	
	32	623373474	653863362	685787392	719204906	754188500	
	33	911202959	955116990	1001066959	1049137208	1099428206	
	34	1324791905	1387728528	1453542513	1522352734	1594298188	
	35	1916214534	2005986996	2099808583	2197845811	2300290203	
	36	2758010431	2885479566	3018622867	3157672750	3302892305	
	37	3950829562	4131033908	4319157881	4515523961	4720492996	
	38	5633795457	5887480582	6152176902	6428329720	6716432234	
	39	7998507297	8354189234	8725123395	9111922601	9515258956	
320	40	11307901010	11804640429	12322430575	12862110965	13424595599	1
	41	15921578084	16612699919	17332774543	18082947508	18864457880	1
	42	22329720010	23287787125	24285540826	25324539357	26406457773	2
	43	31198372012	32521815236	33899480989	35333480988	36826074474	3
	44	43429740494	45251674149	47147456679	49119940279	51172163459	5
	45	60242267397	62742180967	65342365128	68046661086	70859144665	7
	46	83276696067	86695918243	90250881728	93946743277	97788957385	10
	47	114736211129	119398314799	124243648992	129279116257	134511997081	13
	48	157571146032	163908809347	170493113351	177333272920	184438981845	19
	49	215721858002	224312138032	233233510261	242498242330	252119211877	26
400	50	294437348987	306047899919	318101736519	330615147703	343605199477	35
	51	400692315258	416341814226	432583282297	449438295065	466929416925	48
	52	543731842384	564768815374	586594332317	609236900258	632726288421	65
	53	735781293685	763986731454	793240004807	823578689522	855041972396	88
	54	992969566386	1030690238216	1069799990643	1110348241677	1152386463565	119
	55	1336527417256	1386848713337	1439007205798	1493067740268	1549097786306	160

From D. H. Lehmer ; These are partitions of form 5m±1.

5	6	7
165815024	174371737	183349841
247285728	259838176	272999466
366478527	384787216	403970936
539882486	566440997	594250815
790803088	829127353	869232144
1152031869	1207057290	1264604548
1669508159	1748133258	1830314358
2407322949	2519151340	2635972286
3454533847	3612882310	3778211452
4934414559	5157678884	5390665244
7016967099	7330467182	7657455224
9935795636	10374258823	10831365903
4010791946	14621686454	15258260402
9678543433	20526540374	21409785460
7532977786	28705905260	29927054632
3379538393	39996306251	41678833431
3307199971	55528320351	57838835988
3783951616	76825467126	79988143048
1783071890	105934950884	110250562910
9949713355	145600087168	151471096800
1820140687	199487159325	207450672963
2109590337	272483197503	283254174286
7089371145	371085966295	385613737815
5079784772	503913587260	523455631418
7093047960	682369072026	708587099466
7670102172	921505038176	956589884950
5967558314	1241146612833	1287980250387
7166722493	1667346717281	1729711991432