

## Tables of Reductions of Symmetrized Inner Products ("Inner Plethysms") of Ordinary Irreducible Representations of Symmetric Groups

By N. Esper

**Abstract.** Decompositions of symmetrized inner products  $[\alpha] \boxtimes [\beta]$  of ordinary irreducible representations  $[\alpha]$  of symmetric groups  $S_n$  and  $[\beta]$  of  $S_m$  were evaluated on a CDC 6400. Tables were obtained for  $2 \leq n \leq 10$  and  $2 \leq m \leq 5$  as well as for  $m = 6$  and  $2 \leq n \leq 7$ .

In [3] R. C. King published tables of reductions of symmetrized inner products  $[\alpha] \boxtimes [\beta]$  which he calls inner plethysms, of ordinary irreducible representations  $[\alpha]$  of  $S_n$  and  $[\beta]$  of  $S_m$ , where  $n = 4$  and  $m \leq 5$ ,  $n = 5$  and  $m \leq 4$ ,  $n = 6$  and  $m \leq 3$ .\*

He obtained the decomposition by restricting certain representations  $\{\beta\}$  of the general linear group  $GL_n$  to symmetric subgroups.

Such decompositions can be obtained directly by evaluating the character of  $[\alpha] \boxtimes [\beta]$  which is

$$\chi^{[\alpha] \boxtimes [\beta]}(g) = \frac{1}{|S_m|} \sum_{\pi \in S_m} \zeta^{[\beta]}(\pi) \prod_{k=1}^n \zeta^{[\alpha]}(g^k)^{a_k(\pi)},$$

where  $g \in S_n$  and  $a_k(\pi)$  denotes the number of cyclic factors of length  $k$  in  $\pi \in S_m$ ,  $1 \leq k \leq m$ .

For this formula see [1], [2], and [4, p. 74]. The evaluation was carried out with the aid of a computer (CDC 6400 RWTH Aachen) by using the program described in [1], in double-precision arithmetic. The characters of the products  $[\alpha] \boxtimes [\beta]$  were then decomposed into their irreducible constituents via orthogonality relations by using the character table of  $S_n$ .

Tables were thus obtained of the reductions of the symmetrized inner products of the ordinary irreducible representations of the symmetric groups  $S_2$  up to  $S_{10}$  with the ordinary irreducible representations of  $S_2$  up to  $S_5$  and of the characters of  $S_2$  up to  $S_7$  with those of  $S_6$ . These tables appear on the microfiche card in this issue.

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\*Dr. King wants me to point out that in the tables of [3] two printing errors occurred in the decomposition of  $[3, 1] \boxtimes [2^2]$  and  $[3, 1^2] \boxtimes [2, 1^2]$ . The correct values can be obtained from the microfiche.

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( 2 3 )	1	0 2 6	0 2 7	0 2 8	0 2 9	0 3 0
	1					
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0 5	1	1	1	0	0	0
0 6	1	2 0	2 0	1 2	2	0
0 7	1	0	0	0	2	0
0 8	1	2	2	1	0	0
0 9	1	1 0 1	1 5 1	0 3	2 2	2
0 1 0	1	0 3	7 1	0 0	1 1	1
0 1 1	1	2 5 3	2 0 0	1 0 1	0 0	0
0 1 2	1	1 2	1 3	0	2	0
0 1 3	1	2 1	2 0	1 0	0	0
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0 1 5	1	3 0 0	0 0 3	2 0 0	1 3	0
0 1 6	1	3 0 0	0 0 1	2 0 0	1 2	0
0 1 7	1	2 0 1	2 0 0	1 0 0	0 0	0
0 1 8	1	2	0	1	2	0
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0 2 0	1	1 0 0	2 0 0	1 1 0	3 2	3
0 2 1	1	7 1	0 0	0 0	1 3	1
0 2 2	1	2 5	2	1 5	0	0
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0 2 4	1	0 0	0 1	0 0	1 0	2
0 2 5	1	1	3	0	2	0
0 2 6	1	0	0	3	1	0
0 2 7	1	0	1 2	0	3	0
0 2 8	1	3	0	0	2	0
0 2 9	1	0	0	1	1	0
0 3 0	1	0	0	0	0	0

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02	1	0	0	0	0	0
03	1	0	0	0	0	0
04	1	0	0	0	0	0
05	1	0	0	0	0	0

(111)	1	01	02	03	04	05
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02	1	0	2	1	2	1
03	1	0	0	1	0	1
04	1	0	2	1	2	1
05	1	0	0	0	0	0

(211)	1	01	02	03	04	05
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02	1	0	0	0	1	0
03	1	0	0	0	0	0
04	1	0	0	0	1	0
05	1	0	0	0	0	0

(22)	1	01	02	03	04	05
01	1	0	0	0	0	0
02	1	1	1	1	0	0
03	1	1	0	0	0	0
04	1	1	1	1	0	0
05	1	0	0	0	0	0

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(41)	1	01	02	03	04	05	06	07
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02	1	2	3	2	1	1	0	0
03	1	2	3	4	2	4	1	0
04	1	4	5	7	5	7	1	2
05	1	2	3	4	2	4	1	0
06	1	2	3	2	1	1	0	0
07	1	1	0	0	4	0	0	0

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02	1	0	0	0	0
03	1	9	2	0	3
04	1	9	9	0	0
05	1	00	09	73	00
06	1	1970	1070	2003	1301
07	7	132	01	102	112
08	1	37	20	07	33
09	1	0000	0022	12200	1093
010	1	2710	1020	3009	2009
011	1	17012	11000	22052	10000
012	3	201	210	007	203
013	1	001	007	002	907
014	1	10010	1070	10200	0330
015	1	20220	20922	30302	29902
016	1	20220	20922	30302	29902
017	7	17012	11000	22052	10000
018	1	132	01	102	112
019	1	33	20	51	72
020	1	10010	1070	10200	0330
021	1	2710	1020	3009	2009
022	1	001	007	002	907
023	1	0000	0022	12200	1093
024	9	1070	1070	2009	1301
025	:	9	9	0	0
026	1	37	20	07	33
027	1	00	09	73	00
028	1	9	2	0	3
029	1	0	0	0	0
030	:	0	0	0	0

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01	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0
03	1	11	26	26	37	50	27	25	00	30	00	00
04	1	16	23	25	26	50	37	15	56	50	00	00
05	0	00	110	110	211	302	170	210	030	001	000	000
06	0	000	1572	1630	2000	3002	1327	3101	1101	0020	1107	000
07	3	37	117	121	202	300	201	233	200	010	000	000
08	0	07	100	107	211	300	212	312	070	000	000	000
09	030	1000	10310	10712	20007	32000	12030	30005	11015	02051	121030	000
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11	001	0010	10103	10007	00010	00327	00200	00221	101007	100210	100002	000
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14	200	2100	0020	0100	10000	00107	21020	22002	11001	00100	00220	000
15	1000	12001	00100	02002	107101	220701	120000	120020	000007	321200	000007	000
16	0020	12210	120003	120300	200000	031000	30120	122200	1120200	000100	202000	000
17	2001	23007	01702	00000	100010	020000	221000	230230	021000	000000	022000	000
18	1000	12007	00210	03221	100000	223210	107000	125731	010000	333107	007000	000
19	0	00	102	100	200	1022	101	020	2000	2100	3100	000
20	112	1217	0011	0001	10003	22000	11071	12005	00217	11000	00001	000
21	207	2000	0021	10130	20030	00000	21707	20300	00003	03230	00100	000
22	00	000	2100	2070	0301	10000	0720	0000	21303	0000	21700	000
23	11000	130000	021220	031520	040000	103100	100000	1002000	1000007	1002000	1000007	000
24	2001	23007	01702	00000	100010	020000	221000	230230	021000	000000	022000	000
25	207	2000	0021	10130	20030	00000	21707	20300	00003	03230	00100	000
26	1070	12210	120003	120300	200000	031000	30120	122200	1120200	000100	202000	000
27	001	0010	10103	10007	00010	020000	223210	107000	00201	107007	110210	100002
28	0	0	112	111	212	302	010	217	200	000	000	000
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30	132	1237	0011	0001	10003	22000	11071	12005	00217	11000	00001	000
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32	00	003	3001	3027	3100	10202	0200	0050	20012	20000	32100	000
33	200	2100	0020	03100	10000	00107	21020	22002	11001	00100	00220	000
34	030	1000	10310	10712	20000	02000	12030	30005	11015	02051	121030	000
35	00	000	1072	1030	2000	0002	1021	1001	10002	0020	10007	000
36	1	10	23	25	20	00	12	15	00	30	00	00
37	0	0	0	0	0	0	0	0	0	0	0	0
38	0	02	100	107	200	300	212	312	070	000	000	000
39	0	00	110	110	210	300	170	230	030	010	000	000
40	0	11	20	20	30	50	27	20	00	30	00	00
41	0	2	2	2	3	3	2	2	2	2	2	0
42	0	3	0	0	0	0	0	0	1	1	1	3

	01	02	03	04	05	06	07
01	1	0	0	0	0	0	0
02	1	0	0	0	0	0	0
03	1	0	0	0	0	0	0
04	1	0	0	0	0	0	0
05	1	0	0	0	0	0	0
06	1	0	0	0	0	0	0
07	1	0	0	0	0	0	0

	01	02	03	04	05	06	07
01	1	0	0	0	0	0	0
02	1	1	0	0	0	0	0
03	1	2	0	0	11	0	2
04	1	3	17	20	27	20	17
05	1	2	0	0	11	0	2
06	1	0	2	3	0	0	1
07	1	0	0	0	0	0	0

	01	02	03	04	05	06	07
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02	1	0	0	0	0	1	0
03	1	0	1	1	1	1	0
04	1	1	3	0	3	0	1
05	1	0	1	1	1	1	0
06	1	0	1	0	0	0	0
07	1	0	0	0	0	0	0

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02	1	1	3	3	3	2	1
03	1	2	0	0	0	0	1
04	1	2	10	10	20	10	2
05	1	1	5	0	0	0	2
06	1	0	1	2	3	3	1
07	1	0	0	0	0	0	0



	01	02	03	04	05	06	07	08	09	10	11	12	13
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	1	2	0	3	0	0	0	1	1	2	1
03	2	30	02	117	100	207	100	0	0	303	210	100	100
04	12	07	127	100	100	300	103	77	000	002	000	100	200
05	10	102	030	007	003	1301	100	100	1002	1100	1020	100	072
06	1350	0030	20000	20150	37007	00010	00072	10710	03003	20070	110001	00022	00000
07	70	000	1327	1302	1000	0137	2100	000	0030	1000	0010	2202	2700
08	0	1	11	11	10	00	70	0	00	30	00	27	70
09	2000	10020	01010	03000	00722	133171	22002	20102	100000	110701	107020	21000	07107
10	030	0700	13003	10032	10000	03000	25010	0000	07700	37001	01000	23703	20712
11	7000	01300	100720	103000	200020	000303	200010	102707	012320	010000	000000	200010	107200
12	02	070	1300	1010	1000	0100	2202	012	0000	0070	0010	2200	2700
13	101	1100	1232	1307	0001	10330	0002	2200	11200	0101	10030	0002	0707
14	700	0020	13070	10270	10220	03070	23701	0002	07712	10220	01000	23010	10712
15	2000	10001	01010	03013	00210	133331	23000	00101	100000	110007	107020	22002	07107
16	1300	0100	20300	27700	30000	00713	00022	10010	02002	20070	110001	00012	00000
17	0	70	00	100	110	102	100	07	330	200	000	101	200
18	0	0	13	13	10	03	27	0	00	10	00	20	20
19	71	120	003	000	000	1323	700	202	1000	1211	1020	100	072
20	1	13	00	00	02	207	120	30	230	230	100	100	100
21	0	0	0	0	0	0	1	0	0	1	2	3	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
(711)	010	010	020	021	022								

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02	0	0	0	0	0
03	30	07	00	13	1
04	07	110	00	20	7
05	202	000	003	120	21
06	10010	20000	20300	0100	1300
07	017	1000	1300	070	07
08	0	10	13	0	0
09	20101	00710	01010	10031	2000
10	0002	10220	13070	0020	700
11	102707	200020	100720	01300	7000
12	000	1000	1327	000	70
13	2200	0001	1232	1100	101
14	0000	10000	13003	0700	030
15	20102	00722	01010	10020	2000
16	10710	37007	20000	0030	1300
17	77	100	127	07	12
18	0	10	11	3	0
19	300	001	030	102	10
20	00	130	07	30	7
21	0	0	1	0	0
22	0	0	0	0	0







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(6)	1	11	12	13	14	15	16	17
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13	1	5	9	10	8	9	6	2
14	1	9	17	20	16	21	14	0
15	1	5	9	10	8	9	6	2
16	1	3	6	5	3	2	1	0
17	1	1	0	0	0	0	0	0

(9)	1	11	12	13	14	15	16	17
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12	1	1	6	6	0	5	3	0
13	1	2	13	17	22	10	14	3
14	1	9	33	44	50	47	36	10
15	1	2	13	17	22	10	14	3
16	1	1	6	6	0	5	3	0
17	1	0	0	0	0	0	0	0

(92)	1	11	12	13	14	15	16	17
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12	1	3	6	7	5	5	2	1
13	1	6	10	20	18	18	12	4
14	1	14	41	53	49	49	35	12
15	1	6	10	20	18	18	12	4
16	1	3	6	7	5	5	2	1
17	1	0	0	0	0	0	0	0

(911)	1	11	12	13	14	15	16	17
11	1	0	0	0	0	0	0	0
12	1	0	1	2	4	3	4	1
13	1	1	0	10	16	11	11	2
14	1	4	27	33	48	32	30	5
15	1	1	0	10	16	11	11	2
16	1	0	1	2	4	3	4	1
17	1	0	0	0	0	0	0	0

TABLES OF REDUCTIONS OF SYMMETRIZED TENSOR PRODUCTS OF TENSOR  
 PRODUCTS OF THE ORDINARY IRREDUCIBLE REPRESENTATIONS OF SYMMETRIC  
 GROUPS

THE FOLLOWING TABLES CONTAIN THE REDUCTIONS OF THE SYMMETRIZED TENSOR  
 PRODUCTS OF THE ORDINARY IRREDUCIBLE REPRESENTATIONS OF THE SYMMETRIC  
 GROUPS  $S_2$  UP TO  $S_{10}$  WITH THE ORDINARY IRREDUCIBLE REPRESENTATIONS OF  
 $S_2$  UP TO  $S_5$  AND OF THE CHARACTERS OF  $S_2$  UP TO  $S_7$  WITH  
 THOSE OF  $S_5$   
 ON THE FIRST PAGES THE CHARACTERS OF THE SYMMETRIC GROUPS SPECIFIED  
 BY THE PARTITIONS ARE NUMBERED THESE NUMBERS REPRESENT THE CHARACTERS  
 IN THE TABLES  
 FIRST THE CHARACTERS OF  $S_5$  FROM 2 TO 10 ARE SYMMETRIZED WITH  
 THE CHARACTERS OF THE  $S_2$  FROM WITH THOSE OF  $S_2$  UP TO  $S_5$   
 AFTER THIS THE CHARACTERS OF  $S_2$  UP TO  $S_7$  ARE SYMMETRIZED WITH THE  
 CHARACTERS OF  $S_5$   
 EACH ROW GIVES THE SPLITTING OF THE SYMMETRIZATION OF THE CHARACTER IN ORDER  
 OF THE ROW WITH THE CHARACTER ON THE LEFT OF THE TOP OF THE TABLE  
 SOME TABLES TAKE MORE THAN ONE PAGE THESE ARE SPLIT TO BE CONVENIENT







( 1 1 1 ) 1	1	0 1	0 2	0 3	0 4	0 5	0 6	0 7
	1							
0 1	1	0	0	0	0	0	0	0
0 2	1	0	0	0	0	0	0	0
0 3	1	0	0	0	0	0	0	0
0 4	1	0	0	0	0	0	0	0
0 5	1	0	0	0	0	0	0	0
0 6	1	0	0	0	0	0	0	0
0 7	1	0	0	0	0	0	0	0

( 2 1 1 )	1	0 1	0 2	0 3	0 4	0 5	0 6	0 7
	1							
0 1	1	0	0	0	0	0	0	0
0 2	1	0	0	0	0	0	0	0
0 3	1	0	0	0	0	0	0	0
0 4	1	0	0	0	0	0	0	0
0 5	1	0	0	0	0	0	0	0
0 6	1	0	0	0	0	0	0	0
0 7	1	0	0	0	0	0	0	0

( 2 1 1 )	1	0 1	0 2	0 3	0 4	0 5	0 6	0 7
	1							
0 1	1	0	0	0	0	0	0	0
0 2	1	0	0	0	0	0	0	0
0 3	1	0	0	0	0	0	0	0
0 4	1	0	0	0	0	0	0	0
0 5	1	0	0	0	0	0	0	0
0 6	1	0	0	0	0	0	0	0
0 7	1	0	0	0	0	0	0	0

( 2 2 )	1	0 1	0 2	0 3	0 4	0 5	0 6	0 7
	1							
0 1	1	0	0	0	0	0	0	0
0 2	1	0	0	0	0	0	0	0
0 3	1	0	0	0	0	0	0	0
0 4	1	0	0	0	0	0	0	0
0 5	1	0	0	0	0	0	0	0
0 6	1	0	0	0	0	0	0	0
0 7	1	0	0	0	0	0	0	0



1311	1	010	017	010	019	020	021	022	023	024	025	026
01	1	0	0	0	0	0	0	0	0	0	0	0
02	1	0	0	0	0	0	0	0	0	0	0	0
03	1	00	12	10	7	17	10	11	20	10	0	0
04	1	07	10	10	0	11	10	7	27	20	0	17
05	1	700	000	000	07	100	170	270	030	000	277	000
06	1	10721	12010	10070	2051	0700	7232	0070	10000	10000	0103	11222
07	1	1002	070	001	200	027	012	100	1200	070	000	003
08	1	1000	1203	000	220	000	721	020	1770	1100	003	1107
09	1	200030	102007	102770	01230	00102	100727	73300	707031	170007	00003	700330
10	1	01030	07277	10002	10002	22001	27007	10001	00300	00200	20010	00001
11	1	207030	270300	233202	00000	131000	100000	100000	300027	271300	100702	202207
12	1	0000	0000	3001	1121	2100	2027	1033	0000	0000	2000	0007
13	1	01	00	00	7	01	20	20	00	07	01	01
14	1	137270	120100	100010	20007	00002	72217	00023	103207	120100	70002	133010
15	1	007000	700100	000703	177011	000032	020000	200731	1000020	703310	020020	001000
16	1	2020300	1070010	1000700	000000	001000	1072007	700007	2703010	1070000	1070073	2023070
17	1	1000120	1070073	1170010	330000	001707	700320	001072	2017010	1370000	707002	1000000
18	1	700700	730000	023330	170017	101100	010211	203020	1070100	731117	017027	700120
19	1	0000	0000	3001	1121	2100	2027	1033	0000	0000	2000	0002
20	1	70773	73020	02700	17007	10003	01031	20332	107002	73011	02000	70177
21	1	100010	107350	125000	25200	70010	00000	00010	213000	107000	00703	100100
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027

028

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16	1	2066781	1003673	027
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1911	1	134	135	136	137	138	139	140	141
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82	1	0	0	0	0	0	6	0	0
83	1	33	0	1	5	5	3	0	0
84	1	00	43	10	0	16	13	7	7
85	1	5000	2167	391	617	1200	932	347	40
86	1	267565	120009	26030	30003	72010	97076	25705	9060
87	1	12103	6100	1016	1670	3000	2006	1377	370
88	1	15070	7657	1630	2130	0300	3536	1530	300
89	1	0030001	0035005	001316	1172005	2501501	2000000	000070	230020
910	1	1670000	000350	100101	223023	077300	300000	103000	00000
911	1	15331923	7773007	1700753	2000710	0373373	3639012	1005113	030701
912	1	05001	00000	10005	17000	77103	72700	10000	7700
913	1	370	100	32	70	170	70	03	0
914	1	5770071	2025203	655110	760011	1000003	1300070	636000	102700
915	1	53005926	27357061	6100026	7100063	15300006	12010020	5077577	1535037
916	1	171001000	06000007	19536000	22700573	00050911	00705556	10001000	0002700
917	1	116000200	00172700	13313003	15532751	33200103	27730101	12002000	3227035
918	1	52700000	26011507	0030202	7036000	15077000	12003200	5000717	1505020
919	1	05500	00700	10007	12677	27231	72702	10070	2700
920	1	2007050	1522073	302000	000700	000132	713007	572200	05670
921	1	7107630	3630700	016306	051013	2003771	1751003	700076	200150
922	1	1200706	610303	130103	161106	305720	217003	130306	30513
923	1	770123660	395270097	00022300	103751063	222321036	105267007	06052520	22220510
924	1	116510062	00100000	13310707	15530000	33200030	27701230	12006030	3320022
925	1	7100000	3631515	017030	000000	2001202	1702000	703007	200300
926	1	171120050	00035005	19560265	22017200	00000020	00703005	10021732	0002073
927	1	15503077	7000725	1702010	2000526	0036500	3700000	1730000	007600
928	1	10000	7030	1075	1030	0000	3502	1700	005
929	1	1210100	610023	130310	161036	305030	200105	130320	30550
930	1	3000170	1020000	302000	300020	000717	710120	330160	05000
931	1	50000030	27007651	6100530	7212003	10000700	12000222	6020000	1000702
932	1	1731070	000016	200000	231132	007500	016116	100002	00700
933	1	0000373	3001502	670005	700003	1007020	1010300	661022	170003
934	1	0300000	0020000	1100193	1200032	2710300	2270001	1070007	202030
935	1	360000	107077	00000	00703	100007	00312	07003	13500
936	1	037	300	133	00	176	170	123	01
937	1	006	200	72	00	113	130	00	20
938	1	20007	11007	2000	7700	6203	5363	2711	705
939	1	10207	5016	1502	1000	3200	2000	1500	500
940	1	067	360	120	00	170	200	100	00
941	1	2	5	5	0	1	3	0	0
942	1	0	6	0	0	0	0	0	0







020 1222211  
 021 12221111  
 020 122111111  
 020 1211111111  
 020 11111111111

310  
 ---

01 1101  
 02 101  
 03 1021  
 04 1011  
 05 1121  
 06 11211  
 07 11111  
 08 1001  
 09 10311  
 010 10221  
 011 102111  
 012 101111  
 013 1551  
 014 19011  
 015 15221  
 016 152111  
 017 152211  
 018 1521111  
 019 15111111  
 020 10021  
 021 100111  
 022 10331  
 023 102211  
 024 1021111  
 025 102221  
 026 1022111  
 027 10211111  
 028 101111111  
 029 13331  
 030 133221  
 031 1332111  
 032 13311111  
 033 1322211  
 034 13221111  
 035 132111111  
 036 1311111111  
 037 1222221  
 038 12222111  
 039 122211111  
 040 1221111111  
 041 12111111111  
 042 111111111111

(111)	1	01	02	03
01	1	0	0	0
02	1	0	0	0
03	1	0	0	0

(11)	1	01	02	03	04	05
01	1	1	0	0	0	0
02	1	1	2	0	1	0
03	1	1	0	1	0	1
04	1	0	1	0	2	1
05	1	0	0	0	0	1

(21)	1	01	02	03	04	05
01	1	0	0	0	0	0
02	1	0	1	1	1	0
03	1	0	0	1	0	0
04	1	0	1	1	1	0
05	1	0	0	0	0	0

(111)	1	01	02	03	04	05
01	1	0	0	0	0	0
02	1	0	0	0	0	1
03	1	0	0	0	0	0
04	1	1	0	0	0	0
05	1	0	0	0	0	0

( )

|

001

007

( )		001	007
01		0	0
02		0	0
03		0	0
04		0	0
05		0	0
06		0	0
07		1	0
08		0	0
09		0	0
10		0	1
11		0	0
12		0	1
13		0	0
14		10	2
15		01	0
16		10	0
17		00	0
18		20	0
19		1	1
20		0	1
21		10	0
22		2	0
23		100	22
24		00	11
25		11	1
26		00	0
27		21	1
28		0	0
29		0	0
30		0	0
31		02	0
32		11	0
33		11	0
34		01	0
35		10	0
36		2	0
37		1	0
38		0	2
39		0	2
40		0	2
41		2	1
42		0	1



12113	1	010	010	021	021	022	023	024	024	026	027	028	029	030
01	1	0	0	0	0	0	0	0	0	0	0	0	0	0
02	1	0	0	0	0	0	0	0	0	0	0	0	0	0
03	1	0	7	10	10	0	17	0	1	0	0	0	0	0
04	1	0	7	22	15	0	23	13	5	0	0	0	0	0
05	1	71	77	77	101	110	231	120	27	92	90	20	0	1
06	1	2003	1727	6000	0011	3100	6113	7705	000	1500	1003	001	201	72
07	1	170	137	930	391	297	926	300	03	130	102	02	31	0
08	1	00	07	160	116	70	167	00	20	37	00	21	7	1
09	1	12056	9000	30150	27702	10370	37051	20010	6303	0001	10000	0050	1707	210
010	1	3000	2000	11700	0300	5030	11305	7320	1070	2030	3370	1070	007	07
011	1	20200	10322	73053	02103	30000	70070	05500	12100	10220	20070	11000	3001	037
012	1	000	300	1302	001	000	1333	001	230	011	000	212	07	7
013	1	022	710	2013	1000	1303	2120	1200	070	000	000	003	130	10
014	1	10100	11010	00010	32027	22000	03070	20007	7031	11302	13003	7330	2100	270
015	1	01003	31270	120020	00100	02201	120022	77007	20700	31100	30720	20000	0070	700
016	1	01003	31270	120020	00100	02207	120022	77007	20700	31100	30720	20000	0070	700
017	1	20200	10322	73053	02103	30000	70070	05500	12100	10220	20070	11000	3001	037
018	1	170	137	930	301	207	926	300	03	130	102	02	31	0
019	1	00	07	160	110	70	167	00	20	37	00	21	7	1
020	1	10100	11010	00010	32027	22000	03070	20007	7031	11302	13003	7330	2100	270
021	1	3000	2000	11700	0300	5030	11305	7320	1070	2030	3370	1070	007	07
022	1	022	710	2013	1000	1303	2120	1200	070	000	000	003	130	10
023	1	12056	9000	30150	27702	10370	37051	20010	6303	0001	10000	0050	1707	210
024	1	3000	2000	11700	0300	5030	11305	7320	1070	2030	3370	1070	007	07
025	1	022	710	2013	1000	1303	2120	1200	070	000	000	003	130	10
026	1	12056	9000	30150	27702	10370	37051	20010	6303	0001	10000	0050	1707	210
027	1	3000	2000	11700	0300	5030	11305	7320	1070	2030	3370	1070	007	07
028	1	022	710	2013	1000	1303	2120	1200	070	000	000	003	130	10
029	1	12056	9000	30150	27702	10370	37051	20010	6303	0001	10000	0050	1707	210
030	1	3000	2000	11700	0300	5030	11305	7320	1070	2030	3370	1070	007	07









1111	?	027	020	020	030
01	T	0	0	0	0
02	T	0	0	0	0
03	T	35	11	7	0
04	T	70	01	0	7
05	T	1390	720	100	20
06	T	70306	03600	12500	1003
07	T	3597	2033	507	07
08	T	010	000	120	10
09	T	731000	010000	121109	15150
10	T	100500	02300	27000	3300
11	T	1505117	007670	269070	11200
12	T	11170	0700	1000	220
13	T	27520	15005	0555	530
14	T	000005	097075	107020	10000
15	T	3100000	1700723	517070	00502
16	T	3110000	1700000	510000	05000
17	T	1505027	000277	200372	37007
18	T	3770	2100	070	100
19	T	050	005	137	20
20	T	000200	097171	107100	10330
21	T	100000	02300	27371	3310
22	T	27070	10077	0000	502
23	T	703000	010170	130007	10700
24	T	00021	51201	15020	2017
25	T	170	120	07	12
26	T	072	003	101	13
27	T	1020	1123	301	30
28	T	100	107	17	7
29	T	0	1	0	0
30	T	0	0	0	0







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(2)	1	01	02
01	1	1	0
02	1	1	0

(111)	1	01	02
01	1	0	0
02	1	0	0

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(2)	1	01	02	03
01	1	1	0	0
02	1	1	1	0
03	1	1	0	0

(111)	1	01	02	03
01	1	0	0	0
02	1	0	0	1
03	1	0	0	0

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(2)	1	01	02	03	04	05
01	1	1	0	0	0	0
02	1	1	1	1	0	0
03	1	1	0	1	0	0
04	1	1	1	1	0	0
05	1	1	0	0	0	0

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133	1	01	02	03	04	05	06	07
01	1	0	0	0	0	0	0	0
02	1	1	0	0	0	0	0	0
03	1	2	1	1	1	1	1	1
04	1	2	2	1	1	1	1	1
05	1	0	2	1	1	1	2	0
06	1	1	1	1	1	2	2	1
07	1	0	0	0	1	1	2	1
08	1	0	0	0	0	0	0	1

134	1	01	02	03	04	05	06	07
01	1	0	0	0	0	0	0	0
02	1	0	1	1	1	1	0	0
03	1	0	1	2	2	2	1	0
04	1	0	2	3	3	3	2	0
05	1	0	1	2	2	2	1	0
06	1	0	0	1	1	1	1	0
07	1	0	0	0	0	0	0	0

135	1	01	02	03	04	05	06	07
01	1	0	0	3	0	0	0	0
02	1	0	0	0	0	0	1	0
03	1	0	0	0	1	0	1	0
04	1	1	1	1	0	1	1	1
05	1	0	1	0	1	0	0	0
06	1	0	1	0	0	0	0	0
07	1	0	0	0	0	0	0	0

























1111	1	01	02	03	04	05
01	1	0	0	0	0	0
02	1	0	0	0	1	0
03	1	0	0	0	0	1
04	1	0	0	0	1	0
05	1	0	0	0	0	0

1111	1	01	02	03	04	05	06	07
01	1	1	0	0	0	0	0	0
02	1	1	1	1	0	0	0	0
03	1	1	1	1	0	1	0	0
04	1	1	1	2	0	1	0	1
05	1	1	1	1	0	1	0	0
06	1	1	1	1	0	0	0	0
07	1	1	0	0	0	0	0	0

1111	1	01	02	03	04	05	06	07
01	1	0	0	0	0	0	0	0
02	1	0	0	0	1	0	0	0
03	1	0	0	0	1	0	1	0
04	1	0	0	0	1	1	1	0
05	1	0	0	0	1	0	1	0
06	1	0	0	0	1	0	0	0
07	1	0	0	0	0	0	0	0

















151	1	113	114	115	116	117	118	119	120	121
1	1	0	0	0	0	0	0	0	0	0
2	1	1	0	0	0	0	0	0	0	0
3	1	74	167	127	117	96	60	10	60	60
4	1	10	90	112	142	104	66	14	60	60
5	1	463	7474	3544	3031	3544	7544	643	1047	2074
6	1	13066	63808	175915	154443	130712	115040	30504	66345	7444
7	1	494	3343	4444	6574	5706	4436	1706	7747	336
8	1	748	5034	7441	4064	6174	6557	1717	4231	447
9	1	321443	2174101	3372126	4224467	3004574	3240674	412344	1877471	222744
10	1	54301	444405	620372	740341	730274	614044	177417	352717	41447
11	1	625444	3543445	5444442	7457144	6424271	5441674	1444651	7133644	373451
12	1	3243	27507	35303	44072	41577	35806	10144	14006	2372
13	1	47	130	211	107	216	157	56	72	154
14	1	200414	1370022	2133304	2602452	2474444	2100544	440074	1142414	141702
15	1	1026114	12501174	14423302	24444174	22744424	14447436	4444406	14424472	1300524
16	1	5752314	34462774	61444217	77600463	71411461	61362636	17244274	34424416	4100144
17	1	3921067	24444402	42010344	42424433	44413436	41027244	11744774	23427771	4444114
18	1	1777337	12147413	14444444	24430130	22242743	14447274	4444241	14474443	1271214
19	1	3334	22447	35444	44431	41741	35446	10430	14744	2364
20	1	101347	700064	1442445	1374033	1274447	1007174	344277	614224	72444
21	1	243408	1441714	2444444	3244611	3024461	2544324	727314	1451744	73444
22	1	41474	243347	442422	457433	516123	440244	123661	247314	24414
23	1	2410410	17441414	27471447	35244244	32433677	27447474	7431444	14444242	14447414
24	1	3414000	24474342	42444424	42424742	44444444	41027244	11743744	23427771	2444444
25	1	241312	1444474	2544414	32744424	3024464	2544324	727131	1456177	172744
26	1	4744434	34424474	61617423	77444474	71444474	61362636	17262445	34444716	4100312
27	1	414414	3443144	4541444	7414424	6445174	4541674	1544714	3114444	371354
28	1	414	2437	4577	5414	4574	4436	1434	2444	1437
29	1	44447	243107	442443	544102	414467	440244	123364	247444	24444
30	1	102414	644712	1442473	1374433	1274447	1007174	344673	644442	7344
31	1	1414467	12445574	1447474	24444105	22731304	14447436	4442335	14414444	2444741
32	1	47474	342444	616680	777334	723734	614444	176444	344444	414444
33	1	144333	1344414	2144444	2447414	2444410	2144444	444477	1441717	144444
34	1	244100	2444227	3244471	4111431	3024431	3244474	471100	1447474	2144444
35	1	4444	63442	144443	134245	174474	114444	14447	444634	73734
36	1	0	14	32	72	54	66	33	14	74
37	1	1	141	144	214	177	157	37	134	44
38	1	443	3444	6241	7227	7414	6447	1434	3444	447
39	1	144	1342	2172	2437	2414	2444	411	174	174
40	1	3	12	23	33	41	44	24	16	34
41	1	0	0	0	0	0	0	0	0	0
42	1	0	0	0	0	6	4	0	6	4











(211	1	101	102
81	1	0	0
82	1	0	6
83	1	0	0
84	1	0	0
85	1	0	0
86	1	0	0
87	1	1	0
88	1	0	6
89	1	7	0
810	1	5	0
811	1	31	3
812	1	2	0
813	1	0	0
814	1	15	1
815	1	65	6
816	1	103	10
817	1	116	12
818	1	07	6
819	1	2	0
820	1	12	0
821	1	21	2
822	1	6	0
823	1	350	37
824	1	117	11
825	1	21	1
826	1	155	16
827	1	00	5
828	1	2	0
829	1	6	0
830	1	11	1
831	1	03	0
832	1	13	1
833	1	25	2
834	1	00	5
835	1	10	2
836	1	2	0
837	1	0	0
838	1	2	0
839	1	3	0
840	1	2	0
841	1	1	0
842	1	0	0















(21111)	1	134	135	136	137	138	139	140	141
11		0	0	0	0	0	0	0	0
12		0	0	0	0	0	0	0	0
13		99	19	2	2	7	9	1	3
14		102	50	12	12	20	21	10	3
15		5023	2200	430	631	1301	990	395	80
16		263039	129069	27667	30196	72716	50658	26162	6310
17		11215	5795	1326	1064	3160	2668	1265	127
18		15017	7397	1571	1907	4211	3305	1532	365
19		0640073	0351750	907262	1140060	2051700	2029106	937028	237532
110		1619761	020019	103095	215390	461929	303607	170593	05653
111		10992000	7500320	1700000	1991206	4265356	3542630	1656369	025021
112		00607	05220	10203	11796	25361	21200	0070	2540
113		336	166	90	52	05	01	31	10
114		5607110	2002006	637970	706967	1599070	1330930	619705	150060
115		02767230	20795503	6026010	7035077	15073099	12550623	5050760	1500901
116		160062905	05163799	19205602	22007032	00010006	00013252	10672950	000200
117		110310005	50063203	13060666	15201665	32660090	27217020	12701950	3260920
118		51601130	26732690	5903636	6006100	10756002	12290256	5700350	1076070
119		00557	05160	10270	11010	25351	21227	0970	2600
120		2002267	1063905	329115	303767	020176	605992	320070	02250
121		0915001	3512290	700603	922670	1970777	1606635	767037	107500
122		1153506	505716	131707	153929	329535	270601	120095	2920
123		760050009	390109051	07770127	102000931	219000291	102060262	05332000	21901105
124		110306127	50060090	13063622	15200009	32650902	27215602	12700651	3205009
125		0913790	3511790	709030	021151	1076313	1605912	760637	107500
126		100005090	05370002	10210099	22012607	00025193	00023000	10677691	0033190
127		15023965	7601660	1722606	2003710	0296626	3500000	1675020	031970
128		11050	6263	1000	1572	3001	2090	1070	010
129		1153330	505593	131600	153735	329620	270001	120002	32093
130		2002090	1063010	329000	300033	022710	000225	319091	02300
131		52035003	26003713	6001000	7095203	15000000	12500990	0070010	1511120
132		1003060	037200	109356	219501	070310	303117	103030	07501
133		5059020	2070521	609337	755109	1610163	1351090	631665	162010
134		0021310	0619301	1050070	1206500	2503002	2175015	1020002	260790
135		320127	175120	02050	00090	96075	05000	01300	11012
136		233	172	52	26	70	01	56	20
137		325	165	33	30	102	72	39	0
138		17135	0070	2050	2319	0909	0191	1066	020
139		750	0225	1032	1036	2303	2010	1003	273
140		236	159	09	29	66	73	02	10
141		0	0	0	0	0	0	0	0
142		0	0	0	0	6	0	0	0

(6)	1	21	22
21	1	1	0
22	1	1	0

(51)	1	21	22
21	1	0	0
22	1	0	0

(221)	1	21	22
21	1	0	0
22	1	0	0

(211)	1	21	22
21	1	0	0
22	1	0	0

(33)	1	21	22
21	1	0	0
22	1	0	0

(321)	1	21	22
21	1	0	0
22	1	0	0























(5)	1	837	838	839	840	841	842
81	1	0	0	0	8	0	0
82	1	0	0	0	9	0	0
83	1	3	0	1	0	0	0
84	1	0	0	1	2	0	0
85	1	154	323	222	80	12	2
86	1	8696	18206	19987	6307	1476	146
87	1	415	493	778	366	112	14
88	1	593	1078	909	373	47	6
89	1	296100	631665	920299	238020	60029	6429
810	1	57420	121878	180941	46589	11915	1331
811	1	516410	1103409	920705	428929	109989	12271
812	1	3339	7029	5949	2785	738	94
813	1	1	48	18	21	2	4
814	1	195333	417833	347869	161289	41266	4571
815	1	1014062	3087800	3236539	1509356	387270	43022
816	1	5749030	12315375	10263385	4786310	1231096	136250
817	1	3918800	8397711	6996661	3269752	838759	93255
818	1	1777337	3888217	3172341	1478942	379479	41998
819	1	3243	1802	5795	2733	669	85
820	1	102914	217402	182503	84569	21979	2381
821	1	241312	520029	422689	203019	52180	6034
822	1	40997	88575	73478	34349	8769	956
823	1	26186810	55942749	46618106	21754416	5593777	621428
824	1	3921867	8402433	7003337	3268366	840813	93698
825	1	243488	517761	433885	281161	51875	5635
826	1	5757314	12334748	10276282	4796651	1232548	136513
827	1	525499	1125732	940766	439947	113486	12488
828	1	466	1872	928	459	112	6
829	1	41476	88489	73825	34313	8892	935
830	1	101347	228888	182291	85928	21934	2591
831	1	1826116	3912272	3264159	1524928	393223	43858
832	1	59301	128633	107435	51122	13273	1647
833	1	200916	431335	368867	189942	44082	4954
834	1	321943	693318	584297	277838	72942	8264
835	1	13866	28882	25584	13842	3751	477
836	1	18	46	62	43	72	1
837	1	47	31	59	15	13	0
838	1	768	1871	1574	864	253	51
839	1	463	1884	981	548	193	36
840	1	24	79	86	74	31	11
841	1	1	1	3	4	5	2
842	1	0	0	0	0	0	1



	1	x1	x2
x1	1	0	0
x2	1	0	0

	1	x1	x2
x1	1	0	0
x2	1	0	0

	1	x1	x2
x1	1	0	0
x2	1	0	0

	1	x1	x2
x1	1	0	0
x2	1	0	0

	1	x1	x2
x1	1	0	0
x2	1	0	0

	1	x1	x2	x3
x1	1	1	0	0
x2	1	2	2	1
x3	1	1	0	0











( 221	1	E21	E22
	1		
E1	1	0	0
E2	1	0	0
E3	1	0	0
E4	1	1	0
E5	1	6	0
E6	1	223	20
E7	1	21	2
E8	1	0	0
E9	1	399	95
E10	1	191	20
E11	1	999	130
E12	1	21	2
E13	1	96	6
E14	1	191	20
E15	1	399	95
E16	1	223	20
E17	1	1	0
E18	1	0	0
E19	1	6	0
E20	1	0	0
E21	1	0	0
E22	1	0	0



$$\begin{array}{c|ccc} (5) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 1 & 0 \\ 12 & 1 & 0 & 1 \end{array}$$

$$\begin{array}{c|ccc} (11111) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 0 & 0 \\ 12 & 1 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc} (10:1) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 0 & 0 \\ 12 & 1 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc} (2111) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 0 & 0 \\ 12 & 1 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc} (32) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 0 & 0 \\ 12 & 1 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc} (221) & 1 & 11 & 12 \\ \hline & 1 & & \\ 11 & 1 & 0 & 0 \\ 12 & 1 & 0 & 0 \end{array}$$









1911	1	21	22	23
	1			
21	1	0	0	0
22	1	0	2	1
23	1	0	0	0

(21)	1	21	22	23
	1			
21	1	0	0	0
22	1	1	1	0
23	1	0	0	0

19111	1	21	22	23
	1			
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0

(33)	1	21	22	23
	1			
21	1	0	0	0
22	1	0	0	1
23	1	0	0	0

(321)	1	21	22	23
	1			
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0

131111	1	21	22	23
	1			
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0









11111	1	101	102
81	1	0	0
82	1	0	0
83	1	0	0
84	1	0	0
85	1	0	0
86	1	0	0
87	1	0	1
88	1	0	0
89	1	2	1
810	1	2	0
811	1	12	1
812	1	0	0
813	1	0	0
814	1	0	1
815	1	30	4
816	1	72	12
817	1	60	8
818	1	40	5
819	1	2	0
820	1	5	1
821	1	4	0
822	1	5	2
823	1	101	21
824	1	47	6
825	1	13	2
826	1	91	15
827	1	32	7
828	1	3	1
829	1	4	2
830	1	5	0
831	1	30	5
832	1	5	0
833	1	11	2
834	1	22	3
835	1	9	2
836	1	1	1
837	1	0	0
838	1	0	0
839	1	0	0
840	1	0	0
841	1	0	0
842	1	0	0





	1	x1	x2
x1	1	0	0
x2	1	0	0

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(5)	1	x1	x2	x3
x1	1	1	0	0
x2	1	1	2	1
x3	1	0	0	1

(11111)	1	x1	x2	x3
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

(01)	1	x1	x2	x3
x1	1	0	0	0
x2	1	1	1	1
x3	1	0	0	0

(2111)	1	x1	x2	x3
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

(32)	1	x1	x2	x3
x1	1	0	0	0
x2	1	0	1	0
x3	1	0	0	0

121111	1	11	12	13	14	15	16	17	18	19	110	111	112
11		0	0	0	0	0	0	0	0	0	0	0	0
12		0	0	0	0	0	0	1	0	0	0	1	1
13		1	14	38	46	57	132	74	25	141	188	149	74
14		4	20	55	52	72	164	91	36	175	147	234	49
15		10	74	225	238	314	741	418	164	814	660	1044	424
16		815	5712	16337	17162	22892	52356	28656	11452	57304	45862	71749	28712
17		42	273	754	785	1061	2387	1291	528	2617	2042	3340	1301
18		0	2	3	7	10	17	10	1	22	12	30	10
19		1284	9012	25777	27071	36112	82576	45182	18061	90344	72314	116250	45242
110		400	2404	8257	8764	11654	26480	14524	5759	29182	23145	37440	14447
111		4634	32331	92360	96874	129210	295267	161421	64665	322462	258417	415084	161421
112		40	274	761	800	1063	2401	1303	531	2630	2045	3340	1241
113		90	641	1918	1941	2661	6109	3349	1356	6681	5375	8478	3349
114		412	2924	8286	8738	11683	26591	14447	5762	24048	21218	37440	14524
115		1297	9064	25887	27177	36220	82755	45242	18187	90472	72312	116250	45182
116		825	5764	16445	17260	23000	52535	28712	11444	57412	45908	73749	28656
117		3	20	57	61	75	174	64	38	184	144	234	91
118		0	3	4	8	11	28	16	2	23	12	30	16
119		12	82	241	250	332	767	424	179	820	660	1044	418
120		1	12	36	42	54	124	74	23	137	104	144	74
121		0	0	0	0	0	1	1	0	0	0	1	1
122		0	0	0	0	0	0	0	0	0	0	0	0
(21111)		118	114	120	121	122							
11		0	0	0	0	0							
12		0	0	0	0	0							
13		23	54	36	12	1							
14		34	75	57	20	3							
15		170	332	241	82	12							
16		11444	23000	16445	1764	825							
17		531	1063	761	274	40							
18		2	11	4	3	0							
19		18187	36220	25887	9064	1297							
110		5762	11683	8286	2924	412							
111		64665	129210	92360	32331	4634							
112		420	1061	754	273	42							
113		1356	2661	1918	661	98							
114		5759	11654	8257	2909	400							
115		18063	36112	25777	9012	1284							
116		11452	22892	16337	1712	815							
117		36	72	54	20	4							
118		1	10	3	2	0							
119		164	315	225	74	10							
120		25	57	38	14	1							
121		0	0	0	0	0							
122		0	0	0	0	0							





1111111	113	114	115	116	117	118	119	120	1
11	0	0	0	0	0	0	0	0	0
12	0	9	0	0	0	0	0	1	0
13	7	31	46	56	58	49	19	24	
14	5	33	46	67	56	52	16	20	
15	246	1514	2328	2807	2627	2162	615	1252	14
16	10484	64509	106371	132618	121155	101802	27898	58528	689
17	339	2491	3781	4969	4433	3853	1055	2113	25
18	535	3582	4472	6425	4451	5438	1544	3114	36
19	295491	2013524	3133649	3477654	2639964	3090195	863111	1744445	28775
110	53524	365934	571237	718878	664688	567171	154619	320061	3801
111	493030	3378966	5277522	6650378	6154854	4242034	1476095	2453749	35182
112	2814	19370	30287	38165	35324	36227	8544	17019	202
113	0	68	107	124	125	101	35	44	
114	185228	1268384	1980338	2443413	2380888	1968107	552986	1188575	13140
115	1742235	11938082	18652992	23446745	21758463	18564547	5222057	10443715	124335
116	5550087	38877141	59493052	74475529	69410274	58235447	16655524	33318823	396634
117	3774846	25877862	40437245	50445483	47178928	40258404	11325796	22643404	269474
118	1702181	11671432	18236174	22977244	21275868	18154536	5105497	10212203	121572
119	2846	19367	30339	37441	35468	30227	8674	16424	201
120	44258	644907	1009164	1271825	1177278	1004263	282607	565425	6728
121	226749	1544240	2428314	3054761	2833858	2417624	679977	1354401	16149
122	37415	297576	402402	506472	469204	400275	112400	225032	2642
123	25435495	174417713	272428537	343381113	317947418	271318748	76204195	152617887	1818865
124	3773292	25878232	40434423	50958653	47175468	40258404	11322844	22645497	269490
125	224742	1544152	2428754	3058874	2833852	2417624	680631	1360399	16183
126	5553896	38878707	59500404	74968506	69416256	58235547	16659962	33314844	396648
127	491836	3378858	5264281	6641408	6151574	5242034	1478844	2951494	35127
128	361	2433	3688	4809	4465	3843	1112	2077	25
129	37378	257527	402114	507387	468498	400275	112184	225401	2674
130	44384	646058	1009426	1271840	1177405	1004263	282617	565316	6738
131	1734979	11933396	18645274	23446033	21754893	18564547	5228951	10443891	124318
132	53156	363440	568722	716389	664318	567171	160049	318673	3804
133	184052	1263017	1974443	2488644	2385144	1968107	544061	1106721	13173
134	283655	1964414	3174471	3886388	3606314	3090145	874167	1726856	20888
135	8516	60588	96589	123734	116202	101802	29889	54448	661
136	2	25	37	61	47	52	15	20	
137	11	-1	188	132	124	101	30	61	
138	441	3386	5333	6773	6249	5438	1544	2444	13
139	154	1196	1936	2557	2162	1816	467	1114	76
140	2	13	26	40	45	49	21	14	
141	0	0	0	0	0	0	0	0	
142	3	6	0	0	3	0	0	0	



(222)	1	X1	X2	X3
X1	1	0	0	0
X2	1	0	0	0
X3	1	0	0	0

(2211)	1	X1	X2	X3
X1	1	0	0	0
X2	1	0	0	0
X3	1	0	0	0

(21111)	1	X1	X2	X3
X1	1	0	0	0
X2	1	0	0	0
X3	1	0	0	0

(111111)	1	X1	X2	X3
X1	1	0	0	0
X2	1	0	0	0
X3	1	0	0	0

(6)	1	X1	X2	X3	X4	X5
X1	1	1	0	0	0	0
X2	1	3	4	3	2	1
X3	1	2	9	2	0	1
X4	1	3	4	3	2	1
X5	1	1	0	0	0	0



(3)	1	126	127	128	129	130
11	1	0	0	0	0	0
12	1	0	0	0	0	0
13	1	0	0	0	0	0
14	1	0	0	0	0	0
15	1	1	0	0	0	0
16	1	14	13	7	2	0
17	1	3	5	3	2	1
18	1	2	1	1	1	0
19	1	70	79	30	13	1
110	1	32	31	20	9	2
111	1	121	139	73	21	3
112	1	5	5	4	1	1
113	1	13	15	16	9	2
114	1	92	103	56	17	2
115	1	199	231	130	41	6
116	1	191	215	117	32	3
117	1	126	146	76	21	1
118	1	3	3	2	0	0
119	1	0	3	0	0	0
120	1	90	115	65	21	9
121	1	42	49	33	10	5
122	1	15	17	11	3	2
123	1	100	123	69	25	5
124	1	37	49	33	13	3
125	1	1	3	2	2	0
126	1	5	6	4	2	1
127	1	7	12	8	4	2
128	1	3	5	6	3	2
129	1	0	1	1	2	1
130	1	0	0	0	0	1

$$\begin{array}{c}
 \textcircled{01} \\
 \hline
 \begin{array}{cccc}
 & 1 & 01 & 02 \\
 01 & 1 & 1 & 0 \\
 02 & 1 & 1 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \textcircled{11111} \\
 \hline
 \begin{array}{cccc}
 & 1 & 01 & 02 \\
 01 & 1 & 0 & 0 \\
 02 & 1 & 0 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \textcircled{311} \\
 \hline
 \begin{array}{cccc}
 & 1 & 01 & 02 \\
 01 & 1 & 0 & 0 \\
 02 & 1 & 0 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \textcircled{2111} \\
 \hline
 \begin{array}{cccc}
 & 1 & 01 & 02 \\
 01 & 1 & 0 & 0 \\
 02 & 1 & 0 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \textcircled{22} \\
 \hline
 \begin{array}{cccc}
 & 1 & 01 & 02 \\
 01 & 1 & 0 & 0 \\
 02 & 1 & 0 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \textcircled{00} \\
 \hline
 \begin{array}{ccccc}
 & 1 & 01 & 02 & 03 \\
 01 & 1 & 1 & 0 & 0 \\
 02 & 1 & 1 & 2 & 0 \\
 03 & 1 & 1 & 0 & 0
 \end{array}
 \end{array}$$







(221)	1	x1	x2	x3
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

(311)	1	x1	x2	x3
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

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(5)	1	x1	x2	x3	x4	x5
x1	1	0	0	0	0	0
x2	1	1	1	2	0	0
x3	1	1	0	2	0	1
x4	1	0	2	1	0	1
x5	1	0	0	0	0	1

(11111)	1	x1	x2	x3	x4	x5
x1	1	0	0	0	0	0
x2	1	0	0	0	0	0
x3	1	0	0	0	0	0
x4	1	0	0	0	0	0
x5	1	0	0	0	0	0

(911)	1	x1	x2	x3	x4	x5
x1	1	0	0	0	0	0
x2	1	1	3	2	3	1
x3	1	1	0	1	0	1
x4	1	1	3	2	3	1
x5	1	0	0	0	0	0

( 32 )	1	11	12	13	14	15	16	17	18	19	110	111	112
11	1	0	0	0	0	0	0	0	0	0	0	0	0
12	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	17	59	130	112	151	302	190	76	299	230	341	109
14	1	6	50	120	137	157	344	183	73	359	292	417	142
15	1	20	171	492	496	605	1299	666	269	1387	1081	1709	626
16	1	1192	8259	23387	29979	32536	74031	90288	16214	60989	64269	102960	39783
17	1	48	380	1125	1219	1574	3689	2061	801	4016	3202	5191	2022
18	1	3	9	22	10	17	43	26	21	42	50	95	29
19	1	1787	12962	39813	37658	50132	114982	62558	25096	125186	99992	160731	62368
110	1	426	4130	11909	12271	16980	37773	20621	8360	41189	33227	52928	28725
111	1	6171	43559	124491	130998	174552	399145	218492	87188	436598	349169	561690	218492
112	1	50	383	1131	1170	1576	3657	2022	795	3976	3290	5191	2063
113	1	137	999	2806	2979	3992	9049	4911	1948	9729	7876	12750	4911
114	1	585	4079	11801	12365	16376	37640	28724	8350	41292	33099	52928	28671
115	1	1791	12977	35699	37379	49965	114128	67148	24959	124915	100099	160731	62558
116	1	1097	7752	22375	23967	31429	72497	39795	15859	79573	63869	102960	42768
117	1	4	26	71	71	109	259	142	49	287	298	417	183
118	1	3	2	20	7	10	38	25	20	40	49	95	26
119	1	13	116	331	368	496	1137	629	293	1299	1025	1709	666
120	1	1	8	40	42	60	166	109	41	217	188	311	140
121	1	0	0	0	0	0	0	0	0	0	0	1	1
122	1	0	0	0	0	0	0	0	0	0	0	0	0
( 32 )	1	110	119	120	121	122							

11	1	0	0	0	0	0							
12	1	0	0	0	0	0							
13	1	41	60	40	8	1							
14	1	49	109	71	26	9							
15	1	243	996	331	116	13							
16	1	15809	31529	22375	7752	1092							
17	1	795	1576	1131	383	58							
18	1	20	10	20	2	3							
19	1	24959	49965	39699	12477	1791							
110	1	8359	16376	11801	4079	585							
111	1	87108	174552	124491	43559	6171							
112	1	801	1572	1125	386	48							
113	1	1948	3992	2806	999	137							
114	1	8360	16480	11909	4130	626							
115	1	24996	50132	39813	12562	1787							
116	1	16216	32536	23387	8259	1192							
117	1	73	157	120	50	6							
118	1	21	13	22	9	3							
119	1	289	609	497	171	28							
120	1	76	151	130	59	12							
121	1	1	3	4	3	1							
122	1	0	0	0	0	0							

1321	1	127	128	129	130
11	1	0	0	0	0
12	1	0	0	0	0
13	1	26	10	1	0
14	1	61	30	10	0
15	1	1153	597	157	15
16	1	66680	36662	10510	1264
17	1	3117	1760	535	75
18	1	697	390	112	13
19	1	616245	345304	101910	12611
110	1	138819	78136	23033	2904
111	1	1341931	754420	223400	27875
112	1	2404	5300	1531	198
113	1	23543	12272	3929	507
114	1	746044	419548	124244	15514
115	1	2615593	1471275	436019	54587
116	1	2614662	1470544	435526	54325
117	1	1343167	755340	223692	27846
118	1	3174	1887	531	64
119	1	761	488	126	11
120	1	746680	420021	124493	15583
121	1	140015	79034	23432	3006
122	1	23785	13345	3963	507
123	1	629178	355004	105787	13241
124	1	76976	44385	13595	1764
125	1	175	122	58	6
126	1	847	501	159	23
127	1	1866	1132	379	58
128	1	194	144	58	13
129	1	3	4	1	1
130	1	0	0	0	0



1121	134	135	136	137	138	139	140	141
11	0	9	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	45	14	1	7	6	4	0	0
14	113	66	14	8	24	17	9	1
15	6234	2794	495	794	1614	1177	443	87
16	332626	161226	73874	43015	40504	72675	32016	7543
17	14743	7544	1744	1417	4161	3524	1671	454
18	19510	9487	2034	2627	4340	4364	1404	466
19	10473735	5512756	1221606	1456508	3107444	2566791	1181444	244466
110	2076430	1044587	234310	276492	490580	490440	227441	58124
111	14016512	9644354	2145241	2532827	5426230	4516153	2104346	534447
112	714544	44344	13124	15561	33254	27882	13056	3347
113	444	232	37	44	154	45	63	10
114	7150760	3625416	812460	4434271	2040624	1444464	760518	244444
115	66442547	33444767	7640340	8923174	14118885	15424330	7427083	1407444
116	212446344	107445744	24247784	28252438	40747430	50624457	23617853	6472447
117	144744340	73445506	16445743	14305214	41348454	34472154	16086559	4135744
118	65552704	33243444	7488864	8738176	18724257	15442044	7278418	1675545
119	116685	54413	73127	15461	33243	27734	13014	3321
120	3703612	1880544	423306	444087	1056427	882240	410810	144447
121	8846117	4443444	1010153	1178425	2524730	2106366	984244	252411
122	1441044	757044	170344	198531	426060	354605	165478	42466
123	96886744	492107330	110714444	129184440	276814418	238675818	107643456	27678208
124	144080050	73533803	16448660	14308828	41374544	34480204	16444441	4138028
125	8848286	4444337	1011573	1181167	2524278	2107021	442164	252741
126	21274784	10804426	24323731	28366244	40744552	40662764	23644457	4080031
127	14148458	4775015	2245870	2561283	5441635	4584714	2144434	553141
128	16724	4607	2202	2175	4801	4165	2071	560
129	1441637	757278	170614	147084	425406	355061	165453	42584
130	3705581	1882704	423027	443141	1060444	882240	412444	50883
131	7135042	34114012	7602471	8944612	14140341	16000471	7471737	1423414
132	2131214	1048330	246018	284552	612344	411060	240844	62357
133	7275361	3706462	837745	971487	2084314	1741234	815644	210827
134	11407847	5458470	1361838	1554471	3344440	2811164	1324358	347445
135	441814	238444	48234	54642	131143	114461	57542	16172
136	477	145	134	43	144	177	122	40
137	553	286	74	104	139	154	60	23
138	24444	13302	3086	3315	7413	6335	3182	881
139	11866	6691	1736	1704	3763	3454	1416	563
140	444	170	124	71	141	204	144	54
141	2	4	1	0	1	1	4	1
142	4	0	0	0	4	0	0	0

(51)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	1	0	3	2	1
X3	1	0	2	2	0	1
X4	1	1	4	3	3	1
X5	1	0	0	0	0	0

(42)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	2	4	3	2	1
X3	1	1	0	1	0	0
X4	1	2	0	3	2	1
X5	1	0	0	0	0	0

(411)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	0	1	0	2	1
X3	1	0	0	0	0	0
X4	1	0	1	0	2	1
X5	1	0	0	0	0	0

(33)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	2	0	0	0
X2	1	0	1	0	2	1
X3	1	0	0	0	0	1
X4	1	0	1	0	2	1
X5	1	0	2	2	0	0

(321)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	0	1	1	1	0
X3	1	0	0	0	0	0
X4	1	0	1	1	1	0
X5	1	0	0	2	0	0







(1111)	1	x1	x2	x3
	1			
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

(31)	1	x1	x2	x3
	1			
x1	1	0	0	0
x2	1	0	1	1
x3	1	0	0	0

(211)	1	x1	x2	x3
	1			
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0

(22)	1	x1	x2	x3
	1			
x1	1	0	0	0
x2	1	1	0	0
x3	1	0	0	0

(4)	1	x1	x2	x3	x4	x5
	1					
x1	1	1	0	0	0	0
x2	1	2	1	2	1	0
x3	1	1	0	2	0	0
x4	1	2	2	2	1	0
x5	1	1	0	0	0	0





(2111)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	0	0	0	0	0
X3	1	0	0	0	0	0
X4	1	0	0	0	0	0
X5	1	0	0	0	0	0

(32)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	1	2	1	2	0
X3	1	0	0	1	0	0
X4	1	0	2	1	2	1
X5	1	0	0	0	0	0

(771)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	0	1	0	0	0
X3	1	0	0	0	0	0
X4	1	0	0	0	1	0
X5	1	0	0	0	0	0

(111)	1	X1	X2	X3	X4	X5
	1					
X1	1	0	0	0	0	0
X2	1	0	0	1	1	1
X3	1	0	0	0	0	0
X4	1	1	1	1	0	0
X5	1	0	0	0	0	0

(5)	1	X1	X2	X3	X4	X5	X6	X7
	1							
X1	1	1	0	0	0	0	0	0
X2	1	2	4	3	3	1	0	0
X3	1	2	5	7	5	5	3	2
X4	1	0	8	8	10	0	0	0
X5	1	2	3	5	5	1	5	2
X6	1	0	0	1	1	1	4	2
X7	1	0	0	0	0	0	0	1





(11111) ?	177	138	139	140	141	1
11	0	0	0	0	0	
12	0	0	0	0	0	
13	2	1	2	0	0	
14	2	4	5	3	0	
15	154	333	252	109	18	
16	8516	18076	14782	6700	1451	
17	361	771	667	311	49	
18	491	1008	836	372	87	
19	202655	606773	402577	272610	59047	44
110	53156	113352	84534	44854	11320	12
111	491036	1053403	877327	409587	105331	117
112	2896	6115	5173	2449	659	
113	11	21	21	4	2	
114	184052	394234	328295	153872	39311	93
115	1739579	3728479	3106423	1944959	172943	410
116	5553896	11858937	9917233	4624813	1140333	1119
117	3173242	8086096	6737552	3144266	808094	498
118	1707181	3647431	3039480	1412777	364914	404
119	2414	6070	5936	2388	683	
120	44384	202087	168471	78680	20270	22
121	226752	486387	405243	184474	48603	55
122	37378	80465	66854	31194	7844	4
123	29435695	54504349	45418881	21194348	5449619	6254
124	1774846	4087185	3740503	3145669	408217	901
125	226769	485294	404529	188681	48439	53
126	555087	11897046	9911258	4674645	1188204	1315
127	493030	1055772	880591	410847	105442	114
128	339	761	635	304	76	
129	37615	80412	67114	31213	8044	8
130	44254	202014	168342	78668	20243	22
131	1742235	3731827	3111309	1442188	373934	416
132	53524	114961	94414	44064	11454	13
133	185228	397076	331199	154805	39654	44
134	244441	635068	532213	250194	63110	72
135	10444	22874	19746	9694	2659	3
136	4	11	11	7	3	
137	8	27	27	14	4	
138	535	1171	989	482	131	
139	246	519	468	232	70	
140	7	16	16	11	4	
141	0	0	0	0	0	
142	0	0	0	0	0	





(3111) 1 11 12 13 14 15

	1	11	12	13	14	15
x1	1	0	0	0	0	0
x2	1	0	0	0	0	0
x3	1	0	0	0	0	0
x4	1	0	0	0	0	0
x5	1	0	0	0	0	0

(222) 1 11 12 13 14 15

	1	11	12	13	14	15
x1	1	0	0	0	0	0
x2	1	1	0	0	0	0
x3	1	0	0	0	0	0
x4	1	1	0	0	0	0
x5	1	0	0	0	0	0

(2211) 1 11 12 13 14 15

	1	11	12	13	14	15
x1	1	0	0	0	0	0
x2	1	0	0	0	0	0
x3	1	0	0	0	0	0
x4	1	0	0	0	0	0
x5	1	0	0	0	0	0

(21111) 1 11 12 13 14 15

	1	11	12	13	14	15
x1	1	0	0	0	0	0
x2	1	0	0	0	0	0
x3	1	0	0	0	0	0
x4	1	0	0	0	0	0
x5	1	0	0	0	0	0

(1111111) 1 11 12 13 14 15

	1	11	12	13	14	15
x1	1	0	0	0	0	0
x2	1	0	0	0	0	0
x3	1	0	0	0	0	0
x4	1	0	0	0	0	0
x5	1	0	0	0	0	0

O 1  
 E 1  
 F 1  
 G 1  
 H 1  
 I 1  
 J 1  
 K 1  
 L 1  
 M 1  
 N 1  
 O 2  
 P 2  
 Q 2  
 R 2  
 S 2  
 T 2  
 U 2  
 V 2  
 W 2  
 X 2  
 Y 2  
 Z 2  
 A 3  
 B 3  
 C 3  
 D 3  
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 G 3  
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 K 3  
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 M 3  
 N 3  
 O 4  
 P 4  
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 R 4  
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 T 4  
 U 4  
 V 4  
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 X 4  
 Y 4  
 Z 4  
 A 5  
 B 5  
 C 5  
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 E 5  
 F 5  
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 M 5  
 N 5  
 O 6  
 P 6  
 Q 6  
 R 6  
 S 6  
 T 6  
 U 6  
 V 6  
 W 6  
 X 6  
 Y 6  
 Z 6

52					
19	(322)				x10
126	(22221)				x27
(11)		1	x1	x2	x3
(11)		1	x1	x2	x3
(2)	192				
(11)		1	x1	x2	x3
(11)	192				
(111)		1	x1	x2	x3
(111)		1	x1	x2	x3
(21)		1	x1	x2	x3
(3)		1	x26	x27	x28
(21)		1	x1	x2	x3
(21)		1	x76	x77	x78
(111)		1	x1	x2	x3
(3)		1	x21	x22	x
(3)		1	x91	x92	
(21)		1	x1	x2	
(21)		1	x71	x72	x
(21)		1	x91	x92	
(111)		1	x1	x2	
(111)		1	x21	x22	x
(111)		1	x91	x92	
(1111)		1	x1	x2	x3
(1111)		1	x1	x2	x3
(1111)		1	x1	x2	x3
(21)		1	x1	x2	x3
(1111)		1	x1	x2	x3
(22)		1	x1	x2	x3
(1111)		1	x1	x2	x3
(3)		1	x1	x2	x3
(3)		1	x10	x19	
(211)		1	x1	x2	
(211)		1	x10	x19	
(22)		1	x1	x2	
(22)		1	x10	x19	
(4)		1	x16	x17	
(4)		1	x31	x32	
(1111)		1	x1	x2	
(1111)		1	x16	x17	
(1111)		1	x31	x32	
(3)		1	x1	x2	
(3)		1	x16	x17	
(3)		1	x31	x32	
(21)		1	x1	x2	
(21)		1	x16	x17	
(21)		1	x31	x32	
(22)		1	x1	x2	
(22)		1	x16	x17	
(22)		1	x31	x32	
(311)		1	x1	x2	

W 6  
 X 6  
 Y 7  
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 M 11  
 N 11  
 O 12  
 P 12  
 Q 12  
 R 12  
 S 12  
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 U 12  
 V 12  
 W 12

(221)		1	x1	x2	x3
(2111)		1	x1	x2	x3
(11111)		1	x1	x2	x3
(221)		1	x1	x2	x3
(11111)		1	x1	x2	x3
(32)		1	x1	x2	x3
(41)		1	x1	x2	
(221)		1	x1	x2	
(11111)		1	x1	x2	
(41)		1	x1	x2	x2
(2111)		1	x1	x2	x2
(321)		1	x1	x2	x2
(221)		1	x1	x2	x2
(311)		1	x1	x2	x2
(5)		1	x16	x17	
(11111)		1	x1	x2	
(11111)		1	x16	x17	
(41)		1	x1	x2	
(41)		1	x16	x17	
(2111)		1	x1	x2	
(2111)		1	x16	x17	
(32)		1	x1	x2	
(32)		1	x16	x17	
(32)		1	x27	x28	
(221)		1	x1	x2	
(221)		1	x16	x17	
(221)		1	x27	x28	
(31)		1	x1	x2	
(31)		1	x16	x17	
(31)		1	x27	x28	
(5)		1	x13		
(5)		1	x25		
(5)		1	x37		
(11111)		1	x1		
(1111)		1	x13		
(11111)		1	x25		
(11111)		1	x37		
(41)		1	x1		
(41)		1	x12		
(41)		1	x23		
(41)		1	x36		
(2111)		1	x1		
(2111)		1	x17		
(2111)		1	x29		
(32)		1	x1		
(32)		1	x12		
(32)		1	x23		
(32)		1	x36		
(221)		1	x1		
(221)		1	x12		
(221)		1	x23		
(221)		1	x36		
(311)		1	x1		
(311)		1	x12		
(311)		1	x23		
(311)		1	x36		
(311)		1	x1	x2	
(51)		1	x1	x2	x3
(222)		1	x1	x2	x3
(41)		1	x1	x2	x3
(311)		1	x1	x2	x3
(33)		1	x1	x2	x3
(33)		1	x1	x2	x3
(222)		1	x1	x2	x3
(11111)		1	x1	x2	x3

T 12  
 U 12  
 V 12  
 W 12