TABLES OF ANGULAR COEFFICIENTS USED
IN THE THEORY OF THE SCATTERING
OF NUCLEONS BY DEUTERONS

by
Kenneth Smith

PHYSICS DIVISION

June, 1958

Operated by The University of Chicago
under
Contract W-31-109 eng-38

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

CONTENTS

	Page
ABSTRACT	3
I. INTRODUCTION	4
II. METHOD OF CALCULATION.	9
III. DEFINITIONS AND TABLES	11
IV. ACKNOWLEDGMENTS	113
V. BIBLIOGRAPHY	114

ABSTRACT

The angular coefficients contained in this report are summations over the parameters of Racah coefficients and Clebsch-Gordon coefficients which arise in nucleon-deuteron scattering when the assumed phenomenological force between two nucleons has a tensor component. The coefficients have been calculated on an electronic digital computing machine (IBM-650) for those values of the total angular momentum, J , in the range $\frac{1}{2} \leq J \leq \frac{9}{2}$.

I. INTRODUCTION

Recently [Bransden et al. (1958) and Smith (1957)] , an attempt has been made to formulate the problem of nucleon-deuteron scattering, taking tensor forces into account. The approach of these authors is phenomenological; they assume that the interaction between two nucleons, i and j , is:

$$V(ij) = (w + m M_{ij} + h H_{ij} + b M_{ij} H_{ij}) V_c(r_{ij}) + (w' + m' M_{ij}) V_t(r_{ij}) S(ij). \quad (1)$$

M and H are the Majorana and Heisenberg exchange operators, V_c and V_t are different empirically chosen functions of the distance between nucleons, and $S(ij)$ is the tensor operator:

$$S(ij) = \frac{3 (\underline{\sigma}_i \cdot \underline{r}_{ij}) (\underline{\sigma}_j \cdot \underline{r}_{ij})}{r_{ij}^2} - (\underline{\sigma}_i \cdot \underline{\sigma}_j). \quad (2)$$

Using Clebsch-Gordon coefficients, $\Psi(123)$, the over-all wave function for the system, for a particular value of J and π , can be broken down into summations over products of the type:

$$F_{\ell S}(|r|) Y_{\ell m}(\theta, \phi) \Phi^{(u)} \chi_{SM_S}(1, 23) \quad (3)$$

where $F_{\ell S}(|r|)$ describes the radial motion of the impinging nucleon in the channel ℓS , ℓ being the total orbital angular momentum of the system and S the total spin. Thus:

$$\underline{\ell} + \underline{S} = \underline{J}. \quad (4)$$

Therefore, J is the total angular momentum of the system.

The ground state of the deuteron has

$$\Phi(u) = \phi_s(u) + \phi_D(u) S(u) \quad (5)$$

$\chi_{SM_S}(1, 23)$ represents the total spin function for the system, see [Schiff (1955)].

When Eqs. (1) to (5) are substituted into Schrödinger's equation, coupled equations are obtained for the radial functions $F_{lS}(r)$:

$$\left[\frac{d^2}{dr^2} + k^2 - \frac{l(l+1)}{r^2} \right] F_{lS}(r) = \sum_{l'S'} \int d\Omega(r) \int d\underline{u} \chi(\text{Final} | \text{Operators} | \text{Initial}), \quad (6)$$

In order to perform the angular integrations on the right-hand side of Eq. (6), spin matrix elements of the following type were evaluated in terms of Clebsch-Gordon coefficients and second-order surface harmonics.

$$\begin{aligned} & \left(\chi_{S'M_{S'}}(1, 23) \left| S(12) \right| \chi_{SM_S}(3, 12) \right) \\ & \left(\chi_{S'M_{S'}}(1, 23) \left| S(12) S(23) \right| \chi_{SM_S}(3, 12) \right) \\ & \left(\chi_{S'M_{S'}}(1, 23) \left| S(12) S(23) S(13) \right| \chi_{SM_S}(3, 12) \right) \text{ etc.} \end{aligned} \quad (7)$$

Equations (7) give rise to the surface harmonics:

$$Y_{2\mu}(\Theta_{12}), Y_{2\mu}(\Theta_{12}) Y_{2\mu'}(\Theta_{23}) \quad \text{and}$$

$$Y_{2\mu}(\Theta_{12}) Y_{2\mu'}(\Theta_{23}) Y_{2\mu''}(\Theta_{13}).$$

Before the angular integrations can be performed, the arguments of all surface harmonics must be one or the other of the two independent variables.

For example, let x and x' be the two independent variables. Given

$\underline{r} = \underline{x} + \underline{x}'$, then

$$Y_{2\mu}(\Theta_r) = \frac{x^2}{r^2} \cdot Y_{2\mu}(\Theta_x) + \frac{x'^2}{r^2} \cdot Y_{2\mu}(\Theta_{x'}) \\ + \left(\frac{40\pi}{3} \right)^{1/2} \cdot \sum_{\lambda} (11\lambda \mu - \lambda \mid 2\mu) Y_{1\lambda}(\Theta_x) Y_{1\mu-\lambda}(\Theta_{x'}) \quad (8)$$

where $(11\lambda \mu - \lambda \mid 2\mu)$ is the Clebsch-Gordon coefficient.

Thus, the angular integrations were of the type:

$$\int d\Omega_{(x)} Y_{\ell m}^* Y_{2\mu} \cdots Y_{1\lambda} Y_{nq} \cdot \int d\Omega_{(x')} Y_{nq}^* Y_{\ell m} \cdots Y_{1\mu'-\lambda'}. \quad (9)$$

These integrations may be performed by combining pairs of surface harmonics with the same argument [Rose (1955)] by use of the equation:

$$Y_{LM} Y_{nq} = \sum_f \left[\frac{(2n+1)(2L+1)}{4\pi(2f+1)} \right]^{1/2} (nL00|fo)(nLqM|f\phi) Y_{f\phi} \quad (10)$$

The Clebsch-Gordon coefficient $(nL00|fo)$ will henceforth be written as (nL/f) .

Thus, the radial Eqs. (6) take the form:

$$\left[\frac{d^2}{dr^2} + k^2 - \frac{l'(l'+1)}{r^2} \right] F_{l'S'}(r) = \sum_{lS} \{ l'S' V_{lS}^i(r) F_{lS}(r) + \int dr' l'S' K_{lS}^i(r, r') F_{lS}(r') \} \quad (11)$$

The functions $l'S' V_{lS}^i(r)$ and $l'S' K_{lS}^i(r, r')$ contain complicated summations and products of Clebsch-Gordon coefficients. All summations over the magnetic quantum numbers can be effected using the sum rule and recoupling procedure of Racah (1942):

Sum Rule:

$$\sum_{\beta, \delta} (a b a \beta | e \epsilon) (b d \beta \delta | f \phi) (e d \epsilon \delta | c \gamma) = [(2e+1)(2f+1)]^{1/2} (a f a \phi | c \gamma) W(a b c d; e f) \quad (12)$$

Recoupling Rule:

$$(a b a \beta | e \epsilon) (e d \epsilon \delta | c \gamma) = \sum_f [(2e+1)(2f+1)]^{1/2} (b d \beta \delta | f \phi) (a f a \phi | c f) W(a b c d; e f) \quad (13)$$

where $W(a b c d; e f)$ is the Racah coefficient.

Tables of Racah coefficients have been published by several workers [Simon, van der Sluis and Biedenharn (1954) and by Obi et al. (1955)] . Using these tables the angular coefficients for $J = 1/2$ were calculated [Bransden, et al. (1958)] . This work took many months, and some numerical errors went undetected until the present project revealed them.

It was noticed that products of Racah coefficients in some of the coefficients were so arranged that summations over "dummy" quantum numbers could be carried out, yielding Wigner, 9j, 12j, 15j and 18j coefficients. However, as there were no extensive tables of even the 9j coefficient available, no computational advantage could have been gained by throwing the coefficients into products containing Wigner multiple-j coefficients, using [Arima, Horie and Tanabe (1954)] :

$$\begin{pmatrix} a & b & e \\ c & d & f \\ g & h & k \end{pmatrix} = \sum_x (2x+1) W(g k b d; h x) W(e k c d; f x) W(g c b e; a x) \quad (14)$$

and [Ord-Smith (1954)] :

$$\begin{aligned} (-)^{-R-2r} \begin{Bmatrix} a & b & c & d \\ h & g & f & e \\ i & j & k & l \end{Bmatrix} &= \sum_x (-)^{-x} (2x+1) W(d l c k; x f) W(c k b j; x g) \\ &\times W(b j a i; x h) W(a i l d; x e) \end{aligned} \quad (15)$$

where R is the sum of the twelve parameters, and r is the sum of the 1st and 3rd rows.

However, in the interval, since the values for $J = 1/2$ were calculated, the Wigner 9j coefficient has been tabulated [Smith and Stephenson (1957)] , and a programme for the Wigner 12j has been written; so it has been possible to define the angular coefficients in terms of Wigner 6j, 9j and 12j coefficients.

II. METHOD OF CALCULATION

A program for the Racah coefficient, written for another problem [Stephenson and Smith (1957)] was used as the basic subroutine. Sub-routines were also written for the Clebsch-Gordon coefficient $(a b o o | c o)$, using the explicit formula given in Blatt, Biedenharn and Rose (1952), for the functions $g(SS')$ and $g_1(SS')$, which will be defined later, and for $[(2L + 1)(2L' + 1)]^{1/2}$. Programs for the Wigner 9j and 12j coefficients were also written and used as subroutines when necessary.

The first step in a program is to select those values of J, S', l', S, l and n which are allowed by the triangular inequalities. This was done in a "speedometer" manner by fixing J , then S' ; obtaining the allowed values of l' from J and S' ; then fixing S and hence l and finally n . For a particular allowed set of values of the parameters, the ranges of the "dummy" quantum numbers, S'', S''', L, L' , etc., can then be fixed and summed.

For example, consider:

$$A(J S' l' S l n) = f_1(l' l n) \times \sum_L f_2(L l l') \times \sum_{S''} f_3(J S' S S'' L).$$

Assuming that J, S', l', S, l and n are given, it is possible to select the ranges

10.

of L and S'' . The method adopted was to fix L and calculate $f_2 (L \ell \ell')$ for the lowest value of L , then to fix S'' and calculate the function f_3 for each value of S'' . Thus the summation over S'' is performed by adding the values of f_3 . This result is then multiplied by the particular f_2 and the product stored. Next, advance L , calculate the new f_2 and then fix the new range of S'' and perform the summation over S'' . This yields the second term in the summation over L . When the summation over L has been performed the result is multiplied by f_1 to give the required coefficient. The program then advances n and the next coefficient is computed.

The time taken by the machine to calculate the coefficients increased from about ten minutes for A_0 to more than forty hours for A_{12}^a .

III. DEFINITIONS AND TABLES

TABLE I.

$$A_0(J; S'l'; S\ell)$$

$$= (-1)^{S'-J} g_1(S'S) [(2\ell+1)(2\ell'+1)]^{1/2} (\ell\ell' \left| \begin{array}{c} 2 \\ 2 \end{array} \right. W(\ell'S'\ell S; J2)$$

$$\text{where } g_1(S'S) = f(S') f(S) g(S'S)$$

$$g(S'S) = [24(2S+1)(2S'+1)]^{1/2} W(21S' \frac{1}{2}; 1S)$$

$$f(S) = \begin{cases} +1 & \text{for } S = 3/2 \\ -1/2 & \text{for } S = 1/2 \end{cases}$$

05	05	00	15	20	-001.4142134
05	05	10	15	10	-001.4142135
05	15	10	05	10	-001.4142135
05	15	10	15	10	-002.0000000
05	15	20	05	00	-001.4142134
05	15	20	15	20	-002.0000000
15	05	10	15	10	000.4472135
15	05	10	15	30	-001.3416407
15	05	20	15	00	001.0000000
15	05	20	15	20	-001.0000000
15	15	00	05	20	001.0000000
15	15	00	15	20	002.0000000
15	15	10	05	10	000.4472135
15	15	10	15	10	001.6000000
15	15	10	15	30	001.2000000
15	15	20	05	20	-001.0000000
15	15	20	15	00	002.0000000
15	15	20	15	20	000.0000000
15	15	30	05	10	-001.3416407
15	15	30	15	10	001.2000000
15	15	30	15	30	-001.5999999
25	05	20	15	20	000.5345224
25	05	20	15	40	-001.3093073
25	05	30	15	10	001.0954451
25	05	30	15	30	-000.8944271
25	15	10	05	30	001.0954451
25	15	10	15	10	-000.3999999
25	15	10	15	30	001.9595917
25	15	20	05	20	000.5345224
25	15	20	15	20	001.4285714
25	15	20	15	40	001.3997084
25	15	30	05	30	-000.8944271
25	15	30	15	10	001.9595917
25	15	30	15	30	000.4000000
25	15	40	05	20	-001.3093073
25	15	40	15	20	001.3997084
25	15	40	15	40	-001.4285714
35	05	30	15	30	000.5773502
35	05	30	15	50	-001.2909944
35	05	40	15	20	001.1338934
35	05	40	15	40	-000.8451542
35	15	20	05	40	001.1338934
35	15	20	15	20	-000.5714285
35	15	20	15	40	001.9166296
35	15	30	05	30	000.5773502
35	15	30	15	30	001.3333333
35	15	30	15	50	001.4907119
35	15	40	05	40	-000.8451542
35	15	40	15	20	001.9166296
35	15	40	15	40	000.5714285
35	15	50	05	30	-001.2909944
35	15	50	15	30	001.4907119
35	15	50	15	50	-000.5554637
45	05	40	15	40	000.6030226
45	05	40	15	60	-000.4876086

45	05	50	15	30	001.1547005
45	05	50	15	50	-000.3401506
45	15	30	05	50	001.1547005
45	15	30	15	30	-000.6666666
45	15	30	15	50	001.8856180
45	15	40	05	40	000.6030226
45	15	40	15	40	001.2727272
45	15	40	15	60	000.5880782
45	15	50	05	50	-000.3401506
45	15	50	15	30	001.8856180
45	15	50	15	50	000.2777318
45	15	60	05	40	-000.4876086
45	15	60	15	40	000.5880782
45	15	60	15	60	-000.8132358

TABLE II.

$$A_{\circ}^{-}(J; S' l'; S l)$$

$$= (-1)^{S'-J} g(S' S) [(2l+1)(2l'+1)]^{1/2} \left(l \ l' \middle| 2 \right) W(l' S' l S; J 2)$$

05	05	00	15	20	002.8284268
05	05	10	15	10	002.8284270
05	15	10	05	10	002.8284270
05	15	10	15	10	-002.0000000
05	15	20	05	00	002.8284268
05	15	20	15	20	-002.0000000
15	05	10	15	10	-000.8944270
15	05	10	15	30	002.6832814
15	05	20	15	00	-002.0000000
15	05	20	15	20	002.0000000
15	15	00	05	20	-002.0000000
15	15	00	15	20	002.0000000
15	15	10	05	10	-000.8944270
15	15	10	15	10	001.6000000
15	15	10	15	30	001.2000000
15	15	20	05	20	002.0000000
15	15	20	15	00	002.0000000
15	15	20	15	20	000.0000000
15	15	30	05	10	002.6832814
15	15	30	15	10	001.2000000
15	15	30	15	30	-001.5999999
25	05	20	15	20	-001.0690448
25	05	20	15	40	002.6186146
25	05	30	15	10	-002.1908902
25	05	30	15	30	001.7888542
25	15	10	05	30	-002.1908902
25	15	10	15	10	-000.3999999
25	15	10	15	30	001.9595917
25	15	20	05	20	-001.0690448
25	15	20	15	20	001.4285714
25	15	20	15	40	001.3997084
25	15	30	05	30	001.7888542
25	15	30	15	10	001.9595917
25	15	30	15	30	000.4000000
25	15	40	05	20	002.6186146
25	15	40	15	20	001.3997084
25	15	40	15	40	-001.4285714
35	05	30	15	30	-001.1547004
35	05	30	15	50	002.5819888
35	05	40	15	20	-002.2677868
35	05	40	15	40	001.6903084
35	15	20	05	40	-002.2677868
35	15	20	15	20	-000.5714285
35	15	20	15	40	001.9166296
35	15	30	05	30	-001.1547004
35	15	30	15	30	001.3333333
35	15	30	15	50	001.4907119
35	15	40	05	40	001.6903084
35	15	40	15	20	001.9166296
35	15	40	15	40	000.5714285
35	15	50	05	30	002.5819888
35	15	50	15	30	001.4907119
35	15	50	15	50	-000.5554637
45	05	40	15	40	-001.2060452
45	05	40	15	60	000.9752172

45	05	50	15	30	-002.3094010
45	05	50	15	50	000.6803012
45	15	30	05	50	-002.3094010
45	15	30	15	30	-000.6666666
45	15	30	15	50	001.8856180
45	15	40	05	40	-001.2060452
45	15	40	15	40	001.2727272
45	15	40	15	60	000.5880782
45	15	50	05	50	000.6803012
45	15	50	15	30	001.8856180
45	15	50	15	50	000.2777318
45	15	60	05	40	000.9752172
45	15	60	15	40	000.5880782
45	15	60	15	60	-000.8132358

TABLE III.

$$\begin{aligned}
& A_1(J; S' \ell'; S \ell; n) \\
&= 5 [(2\ell + 1)(2\ell' + 1)]^{1/2} \begin{pmatrix} 22 \\ n \end{pmatrix} \begin{pmatrix} \ell' \ell \\ n \end{pmatrix} W(\ell \ell' S S'; n J) \\
&\quad \times (-1)^{S' - J} \sum_{S''} g(S' S'') g_1(S'' S) W(2 S' 2 S; S'' n)
\end{aligned}$$

05	05	00	05	00	00	-003.9999990
05	05	00	15	20	20	-005.6568530
05	05	10	05	10	00	-003.9999999
05	05	10	15	10	20	-005.6568542
05	15	10	05	10	20	002.8284270
05	15	10	15	10	00	001.9999999
05	15	10	15	10	20	-001.9999999
05	15	20	05	00	20	002.8284260
05	15	20	15	20	00	001.9999999
05	15	20	15	20	20	-001.9999999
15	05	10	05	10	00	-003.9999999
15	05	10	15	10	20	001.7888543
15	05	10	15	30	20	-005.3665631
15	05	20	05	20	00	-003.9999999
15	05	20	15	00	20	003.9999990
15	05	20	15	20	20	-003.9999999
15	15	00	05	20	20	-001.9999990
15	15	00	15	00	00	001.9999990
15	15	00	15	20	20	001.9999990
15	15	10	05	10	20	-000.8944271
15	15	10	15	10	00	001.9999999
15	15	10	15	10	20	001.5999999
15	15	10	15	30	20	001.1999999
15	15	20	05	20	20	001.9999999
15	15	20	15	00	20	001.9999990
15	15	20	15	20	00	001.9999999
15	15	20	15	20	20	000.0000000
15	15	30	05	10	20	002.6832815
15	15	30	15	10	20	001.1999999
15	15	30	15	30	00	001.9999999
15	15	30	15	30	20	-001.5999999
25	05	20	05	20	00	-003.9999999
25	05	20	15	20	20	002.1380898
25	05	20	15	40	20	-005.2372292
25	05	30	05	30	00	-003.9999999
25	05	30	15	10	20	004.3817804
25	05	30	15	30	20	-003.5777087
25	15	10	05	30	20	-002.1908902
25	15	10	15	10	00	001.9999999
25	15	10	15	10	20	-000.3999999
25	15	10	15	30	20	001.9595917
25	15	20	05	20	20	-001.0690449
25	15	20	15	20	00	001.9999999
25	15	20	15	20	20	001.4285713
25	15	20	15	40	20	001.3997083
25	15	30	05	30	20	001.7888543
25	15	30	15	10	20	001.9595917
25	15	30	15	30	00	001.9999999
25	15	30	15	30	20	000.3999999
25	15	40	05	20	20	002.6186146
25	15	40	15	20	20	001.3997083
25	15	40	15	40	00	001.9999999
25	15	40	15	40	20	-001.4285713
35	05	30	05	30	00	-003.9999999
35	05	30	15	30	20	002.3094009

35	05	30	15	50	20	-005.1639778
35	05	40	05	40	00	-003.9999999
35	05	40	15	20	20	004.5355736
35	05	40	15	40	20	-003.3806169
35	15	20	05	40	20	-002.2677868
35	15	20	15	20	00	001.9999999
35	15	20	15	20	20	-000.5714285
35	15	20	15	40	20	001.9166296
35	15	30	05	30	20	-001.1547004
35	15	30	15	30	00	001.9999999
35	15	30	15	30	20	001.3333333
35	15	30	15	50	20	001.4907119
35	15	40	05	40	20	001.6903084
35	15	40	15	20	20	001.9166296
35	15	40	15	40	00	001.9999999
35	15	40	15	40	20	000.5714285
35	15	50	05	30	20	002.5819888
35	15	50	15	30	20	001.4907119
35	15	50	15	50	00	000.8331955
35	15	50	15	50	20	-000.5554637
45	05	40	05	40	00	-003.9999999
45	05	40	15	40	20	002.4120907
45	05	40	15	60	20	-001.9504346
45	05	50	05	50	00	-001.6663910
45	05	50	15	30	20	004.6188020
45	05	50	15	50	20	-001.3606026
45	15	30	05	50	20	-002.3094009
45	15	30	15	30	00	001.9999999
45	15	30	15	30	20	-000.6666665
45	15	30	15	50	20	001.8856180
45	15	40	05	40	20	-001.2060453
45	15	40	15	40	00	001.9999999
45	15	40	15	40	20	001.2727272
45	15	40	15	60	20	000.5880781
45	15	50	05	50	20	000.6803013
45	15	50	15	30	20	001.8856180
45	15	50	15	50	00	000.8331955
45	15	50	15	50	20	000.2777318
45	15	60	05	40	20	000.9752173
45	15	60	15	40	20	000.5880781
45	15	60	15	60	00	001.2779420
45	15	60	15	60	20	-000.8132358

TABLE IV.

$$\begin{aligned}
& A_1^{-} (J; S' \ell'; S \ell; n), \\
& = 5 [(2\ell + 1)(2\ell' + 1)]^{-1/2} (2 \ 2 \mid n) (\ell' \ \ell \mid n) W(\ell \ \ell' \ S \ S'; n \ J) \\
& \times (-1)^{S' - J} \sum_{S''} g(S' \ S'') g(S'' \ S) W(2 \ S' \ 2 \ S; S'' \ n),
\end{aligned}$$

where the index " " signifies that $g(S' \ S)$ must be used in place of $g_1(S' \ S)$ in the coefficient A_i .

05	05	00	05	00	00	007.9999980
05	05	00	15	20	20	-005.6568530
05	05	10	05	10	00	007.9999998
05	05	10	15	10	20	-005.6568542
05	15	10	05	10	20	-005.6568542
05	15	10	15	10	00	007.9999997
05	15	10	15	10	20	003.9999999
05	15	20	05	00	20	-005.6568530
05	15	20	15	20	00	007.9999997
05	15	20	15	20	20	003.9999999
15	05	10	05	10	00	007.9999998
15	05	10	15	10	20	001.7888543
15	05	10	15	30	20	-005.3665631
15	05	20	05	20	00	007.9999998
15	05	20	15	00	20	003.9999990
15	05	20	15	20	20	-003.9999999
15	15	00	05	20	20	003.9999990
15	15	00	15	00	00	007.9999960
15	15	00	15	20	20	-003.9999990
15	15	10	05	10	20	001.7888543
15	15	10	15	10	00	007.9999997
15	15	10	15	10	20	-003.1999999
15	15	10	15	30	20	-002.3999999
15	15	20	05	20	20	-003.9999999
15	15	20	15	00	20	-003.9999990
15	15	20	15	20	00	007.9999997
15	15	20	15	20	20	000.0000000
15	15	30	05	10	20	-005.3665631
15	15	30	15	10	20	-002.3999999
15	15	30	15	30	00	007.9999997
15	15	30	15	30	20	003.1999999
25	05	20	05	20	00	007.9999998
25	05	20	15	20	20	002.1380898
25	05	20	15	40	20	-005.2372292
25	05	30	05	30	00	007.9999998
25	05	30	15	10	20	004.3817804
25	05	30	15	30	20	-003.5777087
25	15	10	05	30	20	004.3817804
25	15	10	15	10	00	007.9999997
25	15	10	15	10	20	000.7999998
25	15	10	15	30	20	-003.9191834
25	15	20	05	20	20	002.1380898
25	15	20	15	20	00	007.9999997
25	15	20	15	20	20	-002.8571427
25	15	20	15	40	20	-002.7994167
25	15	30	05	30	20	-003.5777087
25	15	30	15	10	20	-003.9191834
25	15	30	15	30	00	007.9999997
25	15	30	15	30	20	-000.7999998
25	15	40	05	20	20	-005.2372292
25	15	40	15	20	20	-002.7994167
25	15	40	15	40	00	007.9999997
25	15	40	15	40	20	002.8571427
35	05	30	05	30	00	007.9999998
35	05	30	15	30	20	002.3094009

35	05	30	15	50	20	-005.1639778
35	05	40	05	40	00	007.9999998
35	05	40	15	20	20	004.5355736
35	05	40	15	40	20	-003.3806169
35	15	20	05	40	20	004.5355736
35	15	20	15	20	00	007.9999997
35	15	20	15	20	20	001.1428570
35	15	20	15	40	20	-003.8332592
35	15	30	05	30	20	002.3094009
35	15	30	15	30	00	007.9999997
35	15	30	15	30	20	-002.6666666
35	15	30	15	50	20	-002.9814238
35	15	40	05	40	20	-003.3806169
35	15	40	15	20	20	-003.8332592
35	15	40	15	40	00	007.9999997
35	15	40	15	40	20	-001.1428570
35	15	50	05	30	20	-005.1639778
35	15	50	15	30	20	-002.9814238
35	15	50	15	50	00	003.3327820
35	15	50	15	50	20	001.1109274
45	05	40	05	40	00	007.9999998
45	05	40	15	40	20	002.4120907
45	05	40	15	60	20	-001.9504346
45	05	50	05	50	00	003.3327821
45	05	50	15	30	20	004.6188020
45	05	50	15	50	20	-001.3606026
45	15	30	05	50	20	004.6188020
45	15	30	15	30	00	007.9999997
45	15	30	15	30	20	001.3333331
45	15	30	15	50	20	-003.7712360
45	15	40	05	40	20	002.4120907
45	15	40	15	40	00	007.9999997
45	15	40	15	40	20	-002.5454544
45	15	40	15	60	20	-001.1761563
45	15	50	05	50	20	-001.3606026
45	15	50	15	30	20	-003.7712360
45	15	50	15	50	00	003.3327820
45	15	50	15	50	20	-000.5554637
45	15	60	05	40	20	-001.9504346
45	15	60	15	40	20	-001.1761563
45	15	60	15	60	00	005.1117683
45	15	60	15	60	20	001.6264716

TABLE V.

$$A_1^4(J; S' \ell'; S \ell)$$

$$= \sum_L A_1(J; S' \ell'; S \ell; L)$$

05	05	00	05	00	-03.99999900
05	05	00	15	20	-05.65685300
05	05	10	05	10	-03.99999990
05	05	10	15	10	-05.65685420
05	15	10	05	10	02.82842700
05	15	10	15	10	00.00000000
05	15	20	05	00	02.82842600
05	15	20	15	20	00.00000000
15	05	10	05	10	-03.99999990
15	05	10	15	10	01.78885430
15	05	10	15	30	-05.36656310
15	05	20	05	20	-03.99999990
15	05	20	15	00	03.99999900
15	05	20	15	20	-03.99999990
15	15	00	05	20	-01.99999900
15	15	00	15	00	01.99999900
15	15	00	15	20	01.99999900
15	15	10	05	10	-00.89442710
15	15	10	15	10	03.59999980
15	15	10	15	30	01.19999990
15	15	20	05	20	01.99999990
15	15	20	15	00	02.00000000
15	15	20	15	20	01.99999990
15	15	30	05	10	02.68328150
15	15	30	15	10	01.19999990
15	15	30	15	30	00.40000000
25	05	20	05	20	-03.99999990
25	05	20	15	20	02.13808980
25	05	20	15	40	-05.23722920
25	05	30	05	30	-03.99999990
25	05	30	15	10	04.38178040
25	05	30	15	30	-03.57770870
25	15	10	05	30	-02.19089020
25	15	10	15	10	01.60000000
25	15	10	15	30	01.95959170
25	15	20	05	20	-01.06904490
25	15	20	15	20	03.42857120
25	15	20	15	40	01.39970830
25	15	30	05	30	01.78885430
25	15	30	15	10	01.95959170
25	15	30	15	30	01.99999990
25	15	40	05	20	02.61861460
25	15	40	15	20	01.39970830
25	15	40	15	40	00.57142860
35	05	30	05	30	-03.99999990
35	05	30	15	30	02.30940090
35	05	30	15	50	-05.16397780
35	05	40	05	40	-03.99999990
35	05	40	15	20	04.53557360
35	05	40	15	40	-03.38061690
35	15	20	05	40	-02.26778680
35	15	20	15	20	01.42857140
35	15	20	15	40	01.91662960
35	15	30	05	30	-01.15470040
35	15	30	15	30	03.33333320

35	15	30	15	50	01.49071190
35	15	40	05	40	01.69030840
35	15	40	15	20	01.91662960
35	15	40	15	40	02.57142840
35	15	50	05	30	02.58198880
35	15	50	15	30	01.49071190
35	15	50	15	50	00.27773180
45	05	40	05	40	-03.99999990
45	05	40	15	40	02.41209070
45	05	40	15	60	-01.95043460
45	05	50	05	50	-01.66639100
45	05	50	15	30	04.61880200
45	05	50	15	50	-01.36060260
45	15	30	05	50	-02.30940090
45	15	30	15	30	01.33333340
45	15	30	15	50	01.88561800
45	15	40	05	40	-01.20604530
45	15	40	15	40	03.27272710
45	15	40	15	60	00.58807810
45	15	50	05	50	00.68030130
45	15	50	15	30	01.88561800
45	15	50	15	50	01.11092730
45	15	60	05	40	00.97521730
45	15	60	15	40	00.58807810
45	15	60	15	60	01.27794200

TABLE VI.

$$A_1^{4-}(J; S' \ell'; S \ell)$$

$$= \sum_L A_1^{-}(J; S' \ell'; S \ell; L).$$

05	05	00	05	00	07.99999800
05	05	00	15	20	-05.65685300
05	05	10	05	10	07.99999980
05	05	10	15	10	-05.65685420
05	15	10	05	10	-05.65685420
05	15	10	15	10	11.99999960
05	15	20	05	00	-05.65685300
05	15	20	15	20	11.99999960
15	05	10	05	10	07.99999980
15	05	10	15	10	01.78885430
15	05	10	15	30	-05.36656310
15	05	20	05	20	07.99999980
15	05	20	15	00	03.99999900
15	05	20	15	20	-03.99999990
15	15	00	05	20	03.99999900
15	15	00	15	00	07.99999600
15	15	00	15	20	-03.99999900
15	15	10	05	10	01.78885430
15	15	10	15	10	04.79999980
15	15	10	15	30	-02.39999990
15	15	20	05	20	-03.99999990
15	15	20	15	00	-03.99999900
15	15	20	15	20	07.99999970
15	15	30	05	10	-05.36656310
15	15	30	15	10	-02.39999990
15	15	30	15	30	11.19999960
25	05	20	05	20	07.99999980
25	05	20	15	20	02.13808980
25	05	20	15	40	-05.23722920
25	05	30	05	30	07.99999980
25	05	30	15	10	04.38178040
25	05	30	15	30	-03.57770870
25	15	10	05	30	04.38178040
25	15	10	15	10	08.79999950
25	15	10	15	30	-03.91918340
25	15	20	05	20	02.13808980
25	15	20	15	20	05.14285700
25	15	20	15	40	-02.79941670
25	15	30	05	30	-03.57770870
25	15	30	15	10	-03.91918340
25	15	30	15	30	07.99999970
25	15	40	05	20	-05.23722920
25	15	40	15	20	-02.79941670
25	15	40	15	40	10.85714240
35	05	30	05	30	07.99999980
35	05	30	15	30	02.30940090
35	05	30	15	50	-05.16397780
35	05	40	05	40	07.99999980
35	05	40	15	20	04.53557360
35	05	40	15	40	-03.38061690
35	15	20	05	40	04.53557360
35	15	20	15	20	09.14285670
35	15	20	15	40	-03.83325920
35	15	30	05	30	02.30940090
35	15	30	15	30	05.33333310

35	15	30	15	50	-02.98142380
35	15	40	05	40	-03.38061690
35	15	40	15	20	-03.83325920
35	15	40	15	40	06.85714270
35	15	50	05	30	-05.16397780
35	15	50	15	30	-02.98142380
35	15	50	15	50	04.44370940
45	05	40	05	40	07.99999980
45	05	40	15	40	02.41209070
45	05	40	15	60	-01.95043460
45	05	50	05	50	03.33278210
45	05	50	15	30	04.61880200
45	05	50	15	50	-01.36060260
45	15	30	05	50	04.61880200
45	15	30	15	30	09.33333280
45	15	30	15	50	-03.77123600
45	15	40	05	40	02.41209070
45	15	40	15	40	05.45454530
45	15	40	15	60	-01.17615630
45	15	50	05	50	-01.36060260
45	15	50	15	30	-03.77123600
45	15	50	15	50	02.77731830
45	15	60	05	40	-01.95043460
45	15	60	15	40	-01.17615630
45	15	60	15	60	05.11176830

TABLE VII.

$$A_1^B(J; S' l'; S l; n)$$

$$= \sum_L A_1(J; S' l'; S l; L) B(L 2; n)$$

where

$$B(a b; c) = [30(2c + 1)]^{1/2} \frac{(b1 | c)(c1 | a)}{(b2/a)} W(b 1 a 1; n 2)$$

05	05	00	05	00	10	-07.99999801
05	05	00	15	20	10	-07.91959422
05	05	00	15	20	30	-03.39411179
05	05	10	05	10	10	-07.99999981
05	05	10	05	10	30	00.00000000
05	05	10	15	10	10	-07.91959590
05	05	10	15	10	30	-03.39411251
05	15	10	05	10	10	03.95979781
05	15	10	05	10	30	01.69705619
05	15	10	15	10	10	01.19999993
05	15	10	15	10	30	-01.19999993
05	15	20	05	00	10	03.95979641
05	15	20	05	00	30	01.69705559
05	15	20	15	20	10	01.19999993
05	15	20	15	20	30	-01.19999993
15	05	10	05	10	10	-07.99999981
15	05	10	05	10	30	00.00000000
15	05	10	15	10	10	02.50439602
15	05	10	15	10	30	01.07331257
15	05	10	15	30	10	-07.51318836
15	05	10	15	30	30	-03.21993785
15	05	20	05	20	10	-07.99999981
15	05	20	05	20	30	00.00000000
15	05	20	15	00	10	05.59999861
15	05	20	15	00	30	02.39999939
15	05	20	15	20	10	-05.59999987
15	05	20	15	20	30	-02.39999993

15	15	00	05	20	10	-02.79999860
15	15	00	05	20	30	-01.19999939
15	15	00	15	00	10	03.99999800
15	15	00	15	20	10	02.79999860
15	15	00	15	20	30	01.19999939
15	15	10	05	10	10	-01.25219794
15	15	10	05	10	30	-00.53665625
15	15	10	15	10	10	06.23999966
15	15	10	15	10	30	00.95999993
15	15	10	15	30	10	01.67999986
15	15	10	15	30	30	00.71999993
15	15	20	05	20	10	02.79999986
15	15	20	05	20	30	01.19999993
15	15	20	15	00	10	00.00000000
15	15	20	15	00	30	00.00000000
15	15	20	15	20	10	03.99999980
15	15	20	15	20	30	00.00000000
15	15	30	05	10	10	03.75659411
15	15	30	05	10	30	01.60996889
15	15	30	15	10	10	01.67999986
15	15	30	15	10	30	00.71999993
15	15	30	15	30	10	01.75999993
15	15	30	15	30	30	-00.95999993
25	05	20	05	20	10	-07.99999981
25	05	20	05	20	30	00.00000000
25	05	20	15	20	10	02.99332573
25	05	20	15	20	30	01.28285387
25	05	20	15	40	10	-07.33212090
25	05	20	15	40	30	-03.14233751

25	05	30	05	30	10	-07.99999981
25	05	30	05	30	30	00.00000000
25	05	30	15	10	10	06.13449258
25	05	30	15	10	30	02.62906823
25	05	30	15	30	10	-05.00879219
25	05	30	15	30	30	-02.14662521
25	15	10	05	30	10	-03.06724629
25	15	10	05	30	30	-01.31453411
25	15	10	15	10	10	03.43999993
25	15	10	15	10	30	-00.23999993
25	15	10	15	30	10	02.74342838
25	15	10	15	30	30	01.17575501
25	15	20	05	20	10	-01.49666286
25	15	20	05	20	30	-00.64142693
25	15	20	15	20	10	05.99999962
25	15	20	15	20	30	00.85714277
25	15	20	15	40	10	01.95959162
25	15	20	15	40	30	00.83982497
25	15	30	05	30	10	02.50439602
25	15	30	05	30	30	01.07331257
25	15	30	15	10	10	02.74342838
25	15	30	15	10	30	01.17575501
25	15	30	15	30	10	03.99999980
25	15	30	15	30	30	00.00000000
25	15	40	05	20	10	03.66606045
25	15	40	05	20	30	01.57116875
25	15	40	15	20	10	01.95959162
25	15	40	15	20	30	00.83982497
25	15	40	15	40	10	01.99999997

25	15	40	15	40	30	-00.85714277
35	05	30	05	30	10	-07.99999981
35	05	30	05	30	30	00.00000000
35	05	30	15	30	10	03.23316127
35	05	30	15	30	30	01.38564053
35	05	30	15	50	10	-07.22956894
35	05	30	15	50	30	-03.09838667
35	05	40	05	40	10	-07.99999981
35	05	40	05	40	30	00.00000000
35	05	40	15	20	10	06.34980306
35	05	40	15	20	30	02.72134415
35	05	40	15	40	10	-04.73286367
35	05	40	15	40	30	-02.02837013
35	15	20	05	40	10	-03.17490153
35	15	20	05	40	30	-01.36067207
35	15	20	15	20	10	03.19999989
35	15	20	15	20	30	-00.34285709
35	15	20	15	40	10	02.68328144
35	15	20	15	40	30	01.14997775
35	15	30	05	30	10	-01.61658056
35	15	30	05	30	30	-00.69282023
35	15	30	15	30	10	05.86666642
35	15	30	15	30	30	00.79999997
35	15	30	15	50	10	02.08699666
35	15	30	15	50	30	00.89442713
35	15	40	05	40	10	02.36643176
35	15	40	05	40	30	01.01418503
35	15	40	15	20	10	02.68328144
35	15	40	15	20	30	01.14997775

35	15	40	15	40	10	04.79999970
35	15	40	15	40	30	00.34285709
35	15	50	05	30	10	03.61478433
35	15	50	05	30	30	01.54919327
35	15	50	15	30	10	02.08699666
35	15	50	15	30	30	00.89442713
35	15	50	15	50	10	00.88874181
35	15	50	15	50	30	-00.33327821
45	05	40	05	40	10	-07.99999981
45	05	40	05	40	30	00.00000000
45	05	40	15	40	10	03.37692699
45	05	40	15	40	30	01.44725441
45	05	40	15	60	10	-02.73060844
45	05	40	15	60	30	-01.17026075
45	05	50	05	50	10	-03.33278200
45	05	50	05	50	30	00.00000000
45	05	50	15	30	10	06.46632282
45	05	50	15	30	30	02.77128119
45	05	50	15	50	10	-01.90484364
45	05	50	15	50	30	-00.81636155
45	15	30	05	50	10	-03.23316127
45	15	30	05	50	30	-01.38564053
45	15	30	15	30	10	03.06666669
45	15	30	15	30	30	-00.39999989
45	15	30	15	50	10	02.63986520
45	15	30	15	50	30	01.13137079
45	15	40	05	40	10	-01.68846342
45	15	40	05	40	30	-00.72362717
45	15	40	15	40	10	05.78181788

45	15	40	15	40	30	00.76363631
45	15	40	15	60	10	00.82330934
45	15	40	15	60	30	00.35284685
45	15	50	05	50	10	00.95242182
45	15	50	05	50	30	00.40818077
45	15	50	15	30	10	02.63986520
45	15	50	15	30	30	01.13137079
45	15	50	15	50	10	02.05521552
45	15	50	15	50	30	00.16663907
45	15	60	05	40	10	01.36530422
45	15	60	05	40	30	00.58513037
45	15	60	15	40	10	00.82330934
45	15	60	15	40	30	00.35284685
45	15	60	15	60	10	02.55588400
45	15	60	15	60	30	00.00000000

TABLE VIII.

$$A_7^7 (J; S' \ell'; S \ell)$$

$$= \sum_{L L'} A_7 (J; S' \ell'; S \ell; L L')$$

where

$$\begin{aligned} A_7 (J; S' \ell'; S \ell; L L') &= 5 [5 (2\ell + 1)]^{1/2} (2 2 \left| L \right) \\ &\times [(2L + 1)(2L' + 1)]^{1/2} (L 2 \left| L' \right)(L' \ell \left| \ell' \right) W (\ell L' J S'; \ell' S) (-1)^{S' - S} \\ &\times \sum_{S'''} g(S''' S) W (S' L S 2; S''' L') \\ &\times \sum_{S''} g(S' S'') g_1 (S'' S''') W (S' 2 S''' 2; S'' L) \end{aligned}$$

05	05	00	05	00	-016.0000000
05	05	10	05	10	-016.0000000
05	15	10	15	10	008.0000000
05	15	20	15	20	008.0000000
15	05	10	05	10	-016.0000000
15	15	20	05	20	-016.0000000
15	15	00	15	00	008.0000000
15	15	10	15	10	008.0000000
15	15	20	15	20	008.0000000
15	15	30	15	30	008.0000000
25	05	20	05	20	-016.0000000
25	05	30	05	30	-016.0000000
25	15	10	15	10	008.0000000
25	15	20	15	20	008.0000000
25	15	30	15	30	008.0000000
25	15	40	15	40	008.0000000
35	05	30	05	30	-016.0000000
35	05	40	05	40	-016.0000000
35	15	20	15	20	008.0000000
35	15	30	15	30	008.0000000
35	15	40	15	40	008.0000000
35	15	50	15	50	008.0000000
45	05	40	05	40	-016.0000000
45	05	50	05	50	-016.0000000
45	15	30	15	30	008.0000000
45	15	40	15	40	008.0000000
45	15	50	15	50	008.0000000
45	15	60	15	60	008.0000000

TABLE IX.

$$A_{\gamma}^8(J; S' \ell'; S \ell; n)$$

$$= - \sum_L \{ A_{\gamma}(J; S \ell; S' \ell'; L) + A_{\gamma}(J; S' \ell'; S \ell; L) \} B(L^2; n),$$

where

$$A_{\gamma}(J; S' \ell'; S \ell; L) = \sum_{L'} A_{\gamma}(J; S' \ell'; S \ell; L L')$$

05	05	00	05	00	10	0044.800000
05	05	00	05	00	30	0019.199999
05	05	00	15	20	10	0003.394112
05	05	00	15	20	30	-0003.394112
05	05	10	05	10	10	0044.800001
05	05	10	05	10	30	0019.200000
05	05	10	15	10	10	0003.394112
05	05	10	15	10	30	-0003.394112
05	15	10	05	10	10	0003.394112
05	15	10	05	10	30	-0003.394112
05	15	10	15	10	10	-0017.600000
05	15	10	15	10	30	-0014.400000
05	15	20	05	00	10	0003.394112
05	15	20	05	00	30	-0003.394112
05	15	20	15	20	10	-0017.600000
05	15	20	15	20	30	-0014.399999
15	05	10	05	10	10	0044.800001
15	05	10	05	10	30	0019.200000
15	05	10	15	10	10	-0001.073312
15	05	10	15	10	30	0001.073312
15	05	10	15	30	10	0003.219937
15	05	10	15	30	30	-0003.219937
15	05	20	05	20	10	0044.800000
15	05	20	05	20	30	0019.199999
15	05	20	15	00	10	-0002.399999
15	05	20	15	00	30	0002.400000
15	05	20	15	20	10	0002.399999
15	05	20	15	20	30	-0002.399999
15	15	00	05	20	10	-0002.399999
15	15	00	05	20	30	0002.400000
15	15	00	15	00	10	-0022.400000
15	15	00	15	00	30	-0009.600000
15	15	00	15	20	10	-0004.799999
15	15	00	15	20	30	0004.800000
15	15	10	05	10	10	-0001.073312
15	15	10	05	10	30	0001.073312
15	15	10	15	10	10	-0026.240000
15	15	10	15	10	30	-0005.760000
15	15	10	15	30	10	-0002.879999
15	15	10	15	30	30	0002.880000
15	15	20	05	20	10	0002.399999
15	15	20	05	20	30	-0002.399999
15	15	20	15	00	10	-0004.799999
15	15	20	15	00	30	0004.800000
15	15	20	15	20	10	-0022.400000
15	15	20	15	20	30	-0009.599999
15	15	30	05	10	10	0003.219937
15	15	30	05	10	30	-0003.219937
15	15	30	15	10	10	-0002.879999
15	15	30	15	10	30	0002.880000
15	15	30	15	30	10	-0018.560000
15	15	30	15	30	30	-0013.439999
25	05	20	05	20	10	0044.800000
25	05	20	05	20	30	0019.199999

25	05	20	15	20	10	-0001.282853
25	05	20	15	20	30	0001.282853
25	05	20	15	40	10	0003.142336
25	05	20	15	40	30	-0003.142337
25	05	30	05	30	10	0044.800000
25	05	30	05	30	30	0019.199999
25	05	30	15	10	10	-0002.629067
25	05	30	15	10	30	0002.629068
25	05	30	15	30	10	0002.146624
25	05	30	15	30	30	-0002.146625
25	15	10	05	30	10	-0002.629067
25	15	10	05	30	30	0002.629068
25	15	10	15	10	10	-0021.440000
25	15	10	15	10	30	-0010.560000
25	15	10	15	30	10	-0004.703019
25	15	10	15	30	30	0004.703020
25	15	20	05	20	10	-0001.282853
25	15	20	05	20	30	0001.282853
25	15	20	15	20	10	-0025.828572
25	15	20	15	20	30	-0006.171428
25	15	20	15	40	10	-0003.359300
25	15	20	15	40	30	0003.359300
25	15	30	05	30	10	0002.146624
25	15	30	05	30	30	-0002.146625
25	15	30	15	10	10	-0004.703019
25	15	30	15	10	30	0004.703020
25	15	30	15	30	10	-0023.359999
25	15	30	15	30	30	-0008.639999
25	15	40	05	20	10	0003.142336
25	15	40	05	20	30	-0003.142337
25	15	40	15	20	10	-0003.359300
25	15	40	15	20	30	0003.359300
25	15	40	15	40	10	-0018.971429
25	15	40	15	40	30	-0013.028571
35	05	30	05	30	10	0044.800001
35	05	30	05	30	30	0019.200000
35	05	30	15	30	10	-0001.385640
35	05	30	15	30	30	0001.385640
35	05	30	15	50	10	0003.098385
35	05	30	15	50	30	-0003.098386
35	05	40	05	40	10	0044.800001
35	05	40	05	40	30	0019.200000
35	05	40	15	20	10	-0002.721343
35	05	40	15	20	30	0002.721344
35	05	40	15	40	10	0002.028369
35	05	40	15	40	30	-0002.028370
35	15	20	05	40	10	-0002.721343
35	15	20	05	40	30	0002.721344
35	15	20	15	20	10	-0021.028572
35	15	20	15	20	30	-0010.971428
35	15	20	15	40	10	-0015.333038
35	15	20	15	40	30	00.000000
35	15	30	05	30	10	-0001.385640
35	15	30	05	30	30	0001.385640
35	15	30	15	30	10	-0025.600000
35	15	30	15	30	30	-0006.399999
35	15	30	15	50	10	-0003.577708

35	15	30	15	50	30	0003.577708
35	15	40	05	40	10	0002.028369
35	15	40	05	40	30	-0002.028370
35	15	40	15	20	10	-0004.599911
35	15	40	15	20	30	0004.599911
35	15	40	15	40	10	-0023.771428
35	15	40	15	40	30	-0008.228571
35	15	50	05	30	10	0003.098385
35	15	50	05	30	30	-0003.098386
35	15	50	15	30	10	-0003.577708
35	15	50	15	30	30	0003.577708
35	15	50	15	50	10	-0019.200001
35	15	50	15	50	30	-0012.800000
45	05	40	05	40	10	0044.800001
45	05	40	05	40	30	0019.200000
45	05	40	15	40	10	-0001.447254
45	05	40	15	40	30	0001.447254
45	05	40	15	60	10	0003.070090
45	05	40	15	60	30	-0003.070090
45	05	50	05	50	10	0044.800000
45	05	50	05	50	30	0019.199999
45	05	50	15	30	10	-0002.771281
45	05	50	15	30	30	0002.771281
45	05	50	15	50	10	0001.959591
45	05	50	15	50	30	-0001.959591
45	15	30	05	50	10	-0002.771281
45	15	30	05	50	30	0002.771281
45	15	30	15	30	10	-0020.800000
45	15	30	15	30	30	-0011.199999
45	15	30	15	50	10	-0004.525483
45	15	30	15	50	30	0004.525483
45	15	40	05	40	10	-0001.447254
45	15	40	05	40	30	0001.447254
45	15	40	15	40	10	-0025.454545
45	15	40	15	40	30	-0006.545454
45	15	40	15	60	10	-0003.702668
45	15	40	15	60	30	0003.702668
45	15	50	05	50	10	0001.959591
45	15	50	05	50	30	-0001.959591
45	15	50	15	30	10	-0004.525483
45	15	50	15	30	30	0004.525483
45	15	50	15	50	10	-0023.999998
45	15	50	15	50	30	-0008.000000
45	15	60	05	40	10	0010.233635
45	15	60	05	40	30	00.000000
45	15	60	15	40	10	-0012.342227
45	15	60	15	40	30	00.000000
45	15	60	15	60	10	-0019.345454
45	15	60	15	60	30	-0012.654545

TABLE X.

$$A_7^{\theta} (J; S' \ell'; S \ell; n)$$

$$= A_7 (J; S' \ell'; S \ell; n) + A_7 (J; S \ell; S' \ell'; n)$$

$$+ A_7^{\theta c} (J; S' \ell'; S \ell; n)$$

where

$$A_7^{\theta c} (J; S' \ell'; S \ell; n) = 5 [5(2\ell + 1)]^{1/2} \sum_{L''} [30(2L'' + 1)]^{1/2}$$

$$\times (L'' \ell' | \ell') W(\ell L'' J S'; \ell' S) \sum_{L'} (L' 1 | L'') \sum_L [(2L + 1)(2L' + 1)]^{1/2} (2 1 | L)$$

$$\times (L 2 | L') B(L L'; n) \sum_{S'''} g(S''' S) \sum_{S''} g(S' S'') g_1(S'' S''') (-1)^{S'' - S}$$

$$\times \left\{ \begin{array}{ccc} 2 & L & 2 \\ 1 & & S \\ 2 & 1 & L'' \end{array} \begin{array}{ccc} S''' & & S'' \\ & S' & \\ & & \end{array} \right\}.$$

05	05	00	05	00	00	-037.3333310
05	05	00	05	00	20	-058.6666590
05	05	00	15	20	00	-002.2627431
05	05	00	15	20	20	-001.6162508
05	05	00	15	20	40	003.8789830
05	05	10	05	10	00	-037.3333310
05	05	10	05	10	20	-058.6666596
05	05	10	15	10	00	-002.2627434
05	05	10	15	10	20	-001.6162508
05	05	10	15	10	40	003.8789830
05	15	10	05	10	00	-012.4450769
05	15	10	05	10	20	020.2030452
05	15	10	05	10	40	-007.7579685
05	15	10	15	10	00	008.2666650
05	15	10	15	10	20	042.4761809
05	15	10	15	10	40	-002.7428565
05	15	20	05	00	00	-012.4450766
05	15	20	05	00	20	020.2030457
05	15	20	05	00	40	-007.7579685
05	15	20	15	20	00	008.2666650
05	15	20	15	20	20	042.4761800
05	15	20	15	20	40	-002.7428565
15	05	10	05	10	00	-037.3333310
15	05	10	05	10	20	-058.6666601
15	05	10	05	10	40	000.0000000
15	05	10	15	10	00	000.7155425
15	05	10	15	10	20	000.5111032
15	05	10	15	10	40	-001.2266420
15	05	10	15	30	00	-002.1466270
15	05	10	15	30	20	-001.5333105
15	05	10	15	30	40	003.6799260
15	05	20	05	20	00	-037.3333305
15	05	20	05	20	20	-058.6666590
15	05	20	05	20	40	000.0000000
15	05	20	15	00	00	001.6000012
15	05	20	15	00	20	001.1428619
15	05	20	15	00	40	-002.7428550
15	05	20	15	20	00	-001.6000010
15	05	20	15	20	20	-001.1428620
15	05	20	15	20	40	002.7428550
15	15	00	05	20	00	008.7999982
15	15	00	05	20	20	-014.2857106
15	15	00	05	20	40	005.4857120
15	15	00	15	00	00	018.6666655
15	15	00	15	00	20	029.3333304
15	15	00	15	20	00	010.4000001
15	15	00	15	20	20	-013.1428501
15	15	00	15	20	40	002.7428565
15	15	10	05	10	00	003.9354785
15	15	10	05	10	20	-006.3887638
15	15	10	05	10	40	002.4532850
15	15	10	15	10	00	026.9866657
15	15	10	15	10	20	018.8190502
15	15	10	15	10	40	-002.1942855
15	15	10	15	30	00	006.2400002

15	15	10	15	30	20	-007.8857102
15	15	10	15	30	40	001.6457140
15	15	20	05	20	00	-008.7999980
15	15	20	05	20	20	014.2857105
15	15	20	05	20	40	-005.4857120
15	15	20	15	00	00	010.4000001
15	15	20	15	00	20	-013.1428501
15	15	20	15	00	40	002.7428565
15	15	20	15	20	00	018.6666655
15	15	20	15	20	20	029.3333300
15	15	20	15	20	40	000.0000000
15	15	30	05	10	00	-011.8064365
15	15	30	05	10	20	019.1662915
15	15	30	05	10	40	-007.3598550
15	15	30	15	10	00	006.2400002
15	15	30	15	10	20	-007.8857102
15	15	30	15	10	40	001.6457140
15	15	30	15	30	00	010.3466652
15	15	30	15	30	20	039.8476098
15	15	30	15	30	40	-002.1942855
25	05	20	05	20	00	-037.3333305
25	05	20	05	20	20	-058.6666590
25	05	20	05	20	40	000.0000000
25	05	20	15	20	00	000.8552363
25	05	20	15	20	20	000.6108852
25	05	20	15	20	40	-001.4661175
25	05	20	15	40	00	-002.0948934
25	05	20	15	40	20	-001.4963576
25	05	20	15	40	40	003.5912405
25	05	30	05	30	00	-037.3333305
25	05	30	05	30	20	-058.6666590
25	05	30	05	30	40	000.0000000
25	05	30	15	10	00	001.7527134
25	05	30	15	10	20	001.2519426
25	05	30	15	10	40	-003.0046475
25	05	30	15	30	00	-001.4310847
25	05	30	15	30	20	-001.0222068
25	05	30	15	30	40	002.4532840
25	15	10	05	30	00	009.6399149
25	15	10	05	30	20	-015.6492114
25	15	10	05	30	40	006.0092965
25	15	10	15	10	00	016.5866655
25	15	10	15	10	20	031.9619004
25	15	10	15	10	40	-000.5485710
25	15	10	15	30	00	010.1898774
25	15	10	15	30	20	-012.8773104
25	15	10	15	30	40	002.6874395
25	15	20	05	20	00	004.7037968
25	15	20	05	20	20	-007.6360333
25	15	20	05	20	40	002.9322365
25	15	20	15	20	00	026.0952375
25	15	20	15	20	20	019.9455804
25	15	20	15	20	40	001.9591835
25	15	20	15	40	00	007.2784835
25	15	20	15	40	20	-009.1980785

25	15	20	15	40	40	001.9195995
25	15	30	05	30	00	-007.8709577
25	15	30	05	30	20	012.7775277
25	15	30	05	30	40	-004.9065700
25	15	30	15	10	00	010.1898774
25	15	30	15	10	20	-012.8773104
25	15	30	15	10	40	002.6874395
25	15	30	15	30	00	020.7466657
25	15	30	15	30	20	026.7047598
25	15	30	15	30	40	000.5485710
25	15	40	05	20	00	-011.5219024
25	15	40	05	20	20	018.7043854
25	15	40	05	20	40	-007.1824830
25	15	40	15	20	00	007.2784835
25	15	40	15	20	20	-009.1980785
25	15	40	15	20	40	001.9196000
25	15	40	15	40	00	011.2380939
25	15	40	15	40	20	038.7210803
25	15	40	15	40	40	-001.9591835
35	05	30	05	30	00	-037.3333310
35	05	30	05	30	20	-058.6666596
35	05	30	05	30	40	000.0000000
35	05	30	15	30	00	000.9237615
35	05	30	15	30	20	000.6598315
35	05	30	15	30	40	-001.5835880
35	05	30	15	50	00	-002.0655929
35	05	30	15	50	20	-001.4754281
35	05	30	15	50	40	003.5410110
35	05	40	05	40	00	-037.3333305
35	05	40	05	40	20	-058.6666596
35	05	40	05	40	40	000.0000000
35	05	40	15	20	00	001.8142306
35	05	40	15	20	20	001.2958834
35	05	40	15	20	40	-003.1101055
35	05	40	15	40	00	-001.3522478
35	05	40	15	40	20	-000.9658947
35	05	40	15	40	40	002.3181355
35	15	20	05	40	00	009.9782601
35	15	20	05	40	20	-016.1984731
35	15	20	05	40	40	006.2202125
35	15	20	15	20	00	015.6952370
35	15	20	15	20	20	033.0884306
35	15	20	15	20	40	-000.7836735
35	15	20	15	40	00	009.9664751
35	15	20	15	40	20	-012.5949876
35	15	20	15	40	40	002.6285205
35	15	30	05	30	00	005.0806810
35	15	30	05	30	20	-008.2478585
35	15	30	05	30	40	003.1671770
35	15	30	15	30	00	025.5999991
35	15	30	15	30	20	020.5714299
35	15	30	15	30	40	001.8285710
35	15	30	15	50	00	007.7517024
35	15	30	15	50	20	-009.7961016
35	15	30	15	50	40	002.0444045

35	15	40	05	40	00	-007.4373558
35	15	40	05	40	20	012.0736283
35	15	40	05	40	40	-004.6362725
35	15	40	15	20	00	009.9664746
35	15	40	15	20	20	-012.5949881
35	15	40	15	20	40	002.6285205
35	15	40	15	40	00	021.6380941
35	15	40	15	40	20	025.5782296
35	15	40	15	40	40	000.7836735
35	15	50	05	30	00	-011.3607489
35	15	50	05	30	20	018.4427729
35	15	50	05	30	40	-007.0820240
35	15	50	15	30	00	007.7517024
35	15	50	15	30	20	-009.7961016
35	15	50	15	30	40	002.0444045
35	15	50	15	50	00	011.7333318
35	15	50	15	50	20	038.0952306
35	15	50	15	50	40	-001.8285710
45	05	40	05	40	00	-037.3333310
45	05	40	05	40	20	-058.6666596
45	05	40	05	40	40	000.0000000
45	05	40	15	40	00	000.9648372
45	05	40	15	40	20	000.6891713
45	05	40	15	40	40	-001.6540035
45	05	40	15	60	00	-002.0467286
45	05	40	15	60	20	-001.4619538
45	05	40	15	60	40	003.5086720
45	05	50	05	50	00	-037.3333305
45	05	50	05	50	20	-058.6666590
45	05	50	05	50	40	000.0000000
45	05	50	15	30	00	001.8475224
45	05	50	15	30	20	001.3196634
45	05	50	15	30	40	-003.1671765
45	05	50	15	50	00	-001.3063953
45	05	50	15	50	20	-000.9331427
45	05	50	15	50	40	002.2395320
45	15	30	05	50	00	010.1613629
45	15	30	05	50	20	-016.4957171
45	15	30	05	50	40	006.3343545
45	15	30	15	30	00	015.1999984
45	15	30	15	30	20	033.7142796
45	15	30	15	30	40	-000.9142855
45	15	30	15	50	00	009.8052140
45	15	30	15	50	20	-012.3911975
45	15	30	15	50	40	002.5859900
45	15	40	05	40	00	005.3065982
45	15	40	05	40	20	-008.6146072
45	15	40	05	40	40	003.3080085
45	15	40	15	40	00	025.2848470
45	15	40	15	40	20	020.9696982
45	15	40	15	40	40	001.7454540
45	15	40	15	60	00	008.0224475
45	15	40	15	60	20	-010.1382525
45	15	40	15	60	40	002.1158100
45	15	50	05	50	00	-007.1851683

45	15	50	05	50	20	011.6642333
45	15	50	05	50	40	-004.4790650
45	15	50	15	30	00	009.8052140
45	15	50	15	30	20	-012.3911980
45	15	50	15	30	40	002.5859900
45	15	50	15	50	00	022.1333317
45	15	50	15	50	20	024.9523804
45	15	50	15	50	40	000.9142855
45	15	60	05	40	00	-011.2569961
45	15	60	05	40	20	018.2743422
45	15	60	05	40	40	-007.0173465
45	15	60	15	40	00	008.0224475
45	15	60	15	40	20	-010.1382525
45	15	60	15	40	40	002.1158100
45	15	60	15	60	00	012.0484829
45	15	60	15	60	20	037.6969624
45	15	60	15	60	40	-001.7454540

TABLE XI.

$$A_7^{10} (J; S' \ell'; S \ell; n)$$

$$= - \sum_{LL'} \{A_7 (J; S \ell; S' \ell'; LL') + A_7 (J; S' \ell'; S \ell; LL')\} B(LL'; n)$$

05	05	00	05	00	10	0064.000000
05	05	00	05	00	30	00.000000
05	05	00	15	20	10	0003.394112
05	05	00	15	20	30	-0003.394112
05	05	10	05	10	10	0064.000001
05	05	10	05	10	30	00.000000
05	05	10	15	10	10	0003.394112
05	05	10	15	10	30	-0003.394112
05	15	10	05	10	10	0003.394112
05	15	10	05	10	30	-0003.394112
05	15	10	15	10	10	-0027.200000
05	15	10	15	10	30	-0004.799999
05	15	20	05	00	10	0003.394112
05	15	20	05	00	30	-0003.394112
05	15	20	15	20	10	-0027.199999
05	15	20	15	20	30	-0004.799999
15	05	10	05	10	10	0064.000001
15	05	10	05	10	30	00.000000
15	05	10	15	10	10	-0001.073312
15	05	10	15	10	30	0001.073312
15	05	10	15	30	10	0003.219937
15	05	10	15	30	30	-0003.219937
15	05	20	05	20	10	0063.999999
15	05	20	05	20	30	00.000000
15	05	20	15	00	10	-0002.399999
15	05	20	15	00	30	0002.400000
15	05	20	15	20	10	0002.399999
15	05	20	15	20	30	-0002.399999
15	15	00	05	20	10	-0002.399999
15	15	00	05	20	30	0002.400000
15	15	00	15	00	10	-0032.000000
15	15	00	15	00	30	00.000000
15	15	00	15	20	10	-0004.799999
15	15	00	15	20	30	0004.800000
15	15	10	05	10	10	-0001.073312
15	15	10	05	10	30	0001.073312
15	15	10	15	10	10	-0035.839999
15	15	10	15	10	30	0003.840000
15	15	10	15	30	10	-0002.879999
15	15	10	15	30	30	0002.880000
15	15	20	05	20	10	0002.399999
15	15	20	05	20	30	-0002.399999
15	15	20	15	00	10	-0004.799999
15	15	20	15	00	30	0004.800000
15	15	20	15	20	10	-0031.999999
15	15	20	15	20	30	00.000000
15	15	30	05	10	10	0003.219937
15	15	30	05	10	30	-0003.219937
15	15	30	15	10	10	-0009.600000
15	15	30	15	10	30	00.000000
15	15	30	15	30	10	-0028.159999
15	15	30	15	30	30	-0003.839999
25	05	20	05	20	10	0063.999999
25	05	20	05	20	30	

25	05	20	15	20	10	-0001.282853
25	05	20	15	20	30	0001.282853
25	05	20	15	40	10	0003.142336
25	05	20	15	40	30	-0003.142337
25	05	30	05	30	10	0063.999999
25	05	30	05	30	30	00.000000
25	05	30	15	10	10	-0002.629067
25	05	30	15	10	30	0002.629068
25	05	30	15	30	10	0002.146624
25	05	30	15	30	30	-0002.146625
25	15	10	05	30	10	-0002.629067
25	15	10	05	30	30	0002.629068
25	15	10	15	10	10	-0031.040000
25	15	10	15	10	30	-0000.959999
25	15	10	15	30	10	-0004.703019
25	15	10	15	30	30	0004.703020
25	15	20	05	20	10	-0001.282853
25	15	20	05	20	30	0001.282853
25	15	20	15	20	10	-0035.428571
25	15	20	15	20	30	0003.428571
25	15	20	15	40	10	-0003.359300
25	15	20	15	40	30	0003.359300
25	15	30	05	30	10	0002.146624
25	15	30	05	30	30	-0002.146625
25	15	30	15	10	10	-0004.703019
25	15	30	15	10	30	0004.703020
25	15	30	15	30	10	-0032.959998
25	15	30	15	30	30	0000.960000
25	15	40	05	20	10	0003.142336
25	15	40	05	20	30	-0003.142337
25	15	40	15	20	10	-0003.359300
25	15	40	15	20	30	0003.359300
25	15	40	15	40	10	-0028.571428
25	15	40	15	40	30	-0003.428571
35	05	30	05	30	10	0064.000001
35	05	30	05	30	30	00.000000
35	05	30	15	30	10	-0001.385640
35	05	30	15	30	30	0001.385640
35	05	30	15	50	10	0003.098385
35	05	30	15	50	30	-0003.098386
35	05	40	05	40	10	0064.000001
35	05	40	05	40	30	00.000000
35	05	40	15	20	10	-0009.071147
35	05	40	15	20	30	00.000000
35	05	40	15	40	10	0002.028369
35	05	40	15	40	30	-0002.028370
35	15	20	05	40	10	-0002.721343
35	15	20	05	40	30	0002.721344
35	15	20	15	20	10	-0030.628571
35	15	20	15	20	30	-0001.371428
35	15	20	15	40	10	-0004.599911
35	15	20	15	40	30	0004.599911
35	15	30	05	30	10	-0001.385640
35	15	30	05	30	30	0001.385640
35	15	30	15	30	10	-0035.199998
35	15	30	15	30	30	0003.200000
35	15	30	15	50	10	-0003.577708

35	15	30	15	50	30	0003.577708
35	15	40	05	40	10	0002.028369
35	15	40	05	40	30	-0002.028370
35	15	40	15	20	10	-0004.599911
35	15	40	15	20	30	0004.599911
35	15	40	15	40	10	-0033.371428
35	15	40	15	40	30	0001.371428
35	15	50	05	30	10	0003.098385
35	15	50	05	30	30	-0003.098386
35	15	50	15	30	10	-0003.577708
35	15	50	15	30	30	0003.577708
35	15	50	15	50	10	-0028.800000
35	15	50	15	50	30	-0003.199999
45	05	40	05	40	10	0064.000001
45	05	40	05	40	30	00.000000
45	05	40	15	40	10	-0001.447254
45	05	40	15	40	30	0001.447254
45	05	40	15	60	10	0003.070090
45	05	40	15	60	30	-0003.070090
45	05	50	05	50	10	0063.999999
45	05	50	05	50	30	00.000000
45	05	50	15	30	10	-0002.771281
45	05	50	15	30	30	0002.771281
45	05	50	15	50	10	0001.959591
45	05	50	15	50	30	-0001.959591
45	15	30	05	50	10	-0002.771281
45	15	30	05	50	30	0002.771281
45	15	30	15	30	10	-0030.399999
45	15	30	15	30	30	-0001.599999
45	15	30	15	50	10	-0015.084945
45	15	30	15	50	30	00.000000
45	15	40	05	40	10	-0004.824181
45	15	40	05	40	30	00.000000
45	15	40	15	40	10	-0035.054545
45	15	40	15	40	30	0003.054545
45	15	40	15	60	10	-0003.702668
45	15	40	15	60	30	0003.702668
45	15	50	05	50	10	0001.959591
45	15	50	05	50	30	-0001.959591
45	15	50	15	30	10	-0004.525483
45	15	50	15	30	30	0004.525483
45	15	50	15	50	10	-0033.599998
45	15	50	15	50	30	0001.600000
45	15	60	05	40	10	0003.070090
45	15	60	05	40	30	-0003.070090
45	15	60	15	40	10	-0003.702668
45	15	60	15	40	30	0003.702668
45	15	60	15	60	10	-0028.945454
45	15	60	15	60	30	-0003.054545

TABLE XII.

$$A_7^{11} (J; S' \ell'; S \ell; n)$$

$$= \sum_L A_7 (J; S' \ell'; S \ell; L n)$$

05	05	00	05	00	-016.0000002
05	05	10	05	10	-016.0000003
05	15	10	15	10	008.0000002
05	15	20	15	20	008.0000000
15	05	10	05	10	-016.0000003
15	05	20	05	20	-016.0000000
15	15	00	15	00	008.0000002
15	15	10	15	10	008.0000002
15	15	20	15	20	008.0000000
15	15	30	15	30	008.0000000
25	05	20	05	20	-016.0000000
25	05	30	05	30	-016.0000000
25	15	10	15	10	008.0000002
25	15	20	15	20	008.0000000
25	15	30	15	30	008.0000000
25	15	40	15	40	008.0000001
35	05	30	05	30	-016.0000003
35	05	40	05	40	-016.0000003
35	15	20	15	20	008.0000000
35	15	30	15	30	008.0000000
35	15	40	15	40	008.0000001
35	15	50	15	50	008.0000002
45	05	40	05	40	-016.0000003
45	05	50	05	50	-016.0000000
45	15	30	15	30	008.0000000
45	15	40	15	40	008.0000001
45	15	50	15	50	008.0000002
45	15	60	15	60	008.0000003

TABLE XIII

54

$${}_{234} A^{-} (J; S' l'; S l; n)$$

$$= A_2^{-} + 4A_3^{-} - 2A_4^{-},$$

$$\text{where, } A_2 (J; S' l'; S l; n) = 5 [(2l+1)(2n+1)]^{1/2} (l \ 2/n)$$

$$\times (n \ 2/l') \sum_{S''} (-1)^{S'-S''} g(S' S'') g_1(S'' S) W(l' S' n S''; J \ 2)$$

$$\times W(n S'' l \ S; J \ 2),$$

$$A_3 (J; S' l'; S l; n) = 20 [(2l+1)(2n+1)]^{1/2} (l \ 2/n)$$

$$\times (n \ 2/l') \sum_{S''} (-1)^{S''-S} g(S' S'') g_1(S'' S) \begin{pmatrix} n \ 2 \ l' \\ 2 \ S'' \ S' \\ l \ S \ J \end{pmatrix}$$

and

$$A_4 (J; S' l'; S l; n) = 10 [30(2l+1)]^{1/2} (-1)^{l'+S'+J}$$

$$\times \sum_{L'} (L' \ 1/l') \sum_L [(2L'+1)(2L+1)]^{1/2} (l \ 1/L)(L \ 2/L') B(L L'; n)$$

$$\times \sum_{S''} g(S' S'') g_1(S'' S) \left\{ \begin{matrix} 1 \ 2 \ S'' \ 2 \\ L' \ l' \ J \ l \ L \end{matrix} \right\}$$

05	05	00	05	00	00	106.6666604
05	05	00	05	00	20	157.3332354
05	05	00	15	20	00	-052.7973012
05	05	00	15	20	20	-133.8788620
05	05	10	05	10	10	097.6000039
05	05	10	05	10	30	166.3999874
05	05	10	15	10	10	-136.8958626
05	05	10	15	10	30	-049.7803110
05	15	10	05	10	10	-136.8958626
05	15	10	05	10	30	-049.7803110
05	15	10	15	10	10	194.3999846
05	15	10	15	10	30	201.5999778
05	15	20	05	00	00	-052.7973030
05	15	20	05	00	20	-133.8787990
05	15	20	15	20	00	017.5999988
05	15	20	15	20	20	175.4285419
05	15	20	15	20	40	202.9714122
15	05	10	05	10	10	205.5999727
15	05	10	05	10	30	058.3999851
15	05	10	15	10	10	091.5893428
15	05	10	15	10	30	-032.5571435
15	05	10	15	30	10	-065.4720603
15	05	10	15	30	30	-111.6244860
15	05	20	05	20	00	-004.5332618
15	05	20	05	20	20	125.9047385
15	05	20	05	20	40	142.6285524
15	05	20	15	00	00	037.3333304
15	05	20	15	00	20	094.6665742
15	05	20	15	20	00	-022.1332530
15	05	20	15	20	20	-049.5238032
15	05	20	15	20	40	-060.3428544
15	15	00	05	20	00	037.3333296
15	15	00	05	20	20	094.6666481
15	15	00	15	00	00	106.6666604
15	15	00	15	00	20	157.3331504
15	15	00	15	20	00	-037.3333296
15	15	00	15	20	20	-094.6666566
15	15	10	05	10	10	091.5893428
15	15	10	05	10	30	-032.5571435
15	15	10	15	10	10	041.7599872
15	15	10	15	10	30	116.6399763
15	15	10	15	30	10	-029.2799962
15	15	10	15	30	30	-049.9199837
15	15	20	05	20	00	-022.1332530
15	15	20	05	20	20	-049.5238032
15	15	20	05	20	40	-060.3428544
15	15	20	15	00	00	-037.3333304
15	15	20	15	00	20	-094.6665742
15	15	20	15	20	00	-004.5333394
15	15	20	15	20	20	125.9047361
15	15	20	15	20	40	142.6285364
15	15	30	05	10	10	-065.4720475
15	15	30	05	10	30	-111.6244890
15	15	30	15	10	10	-029.2799780
15	15	30	15	10	30	-049.9199811

15	15	30	15	30	10	014.1257100
15	15	30	15	30	30	167.5377215
15	15	30	15	30	50	187.9364910
25	05	20	05	20	00	055.4665832
25	05	20	05	20	20	168.7618588
25	05	20	05	20	40	039.7714038
25	05	20	15	20	00	043.9021020
25	05	20	15	20	20	049.3796926
25	05	20	15	20	40	-022.7248345
25	05	20	15	40	20	-070.3284894
25	05	20	15	40	40	-102.4999979
25	05	30	05	30	10	-000.6857197
25	05	30	05	30	30	132.6221659
25	05	30	05	30	50	132.0634730
25	05	30	15	10	10	053.4576993
25	05	30	15	10	30	091.1410126
25	05	30	15	30	10	-016.5596844
25	05	30	15	30	30	-039.0368024
25	05	30	15	30	50	-062.4679376
25	15	10	05	30	10	053.4577015
25	15	10	05	30	30	091.1410046
25	15	10	15	10	10	246.5599647
25	15	10	15	10	30	043.8399758
25	15	10	15	30	10	-047.8140335
25	15	10	15	30	30	-081.5190007
25	15	20	05	20	00	043.9021020
25	15	20	05	20	20	049.3796926
25	15	20	05	20	40	-022.7248345
25	15	20	15	20	00	-003.2000064
25	15	20	15	20	20	102.7754588
25	15	20	15	20	40	070.1387464
25	15	20	15	40	20	-037.5921629
25	15	20	15	40	40	-054.7885730
25	15	30	05	30	10	-016.5596844
25	15	30	05	30	30	-039.0367908
25	15	30	05	30	50	-062.4679318
25	15	30	15	10	10	-047.8140325
25	15	30	15	10	30	-081.5189891
25	15	30	15	30	10	-004.3885935
25	15	30	15	30	30	123.8932662
25	15	30	15	30	50	118.0951940
25	15	40	05	20	20	-070.3284794
25	15	40	05	20	40	-102.5000307
25	15	40	15	20	20	-037.5921375
25	15	40	15	20	40	-054.7885578
25	15	40	15	40	20	012.8435364
25	15	40	15	40	40	166.0481658
25	15	40	15	40	60	071.3819184
35	05	30	05	30	10	071.3142676
35	05	30	05	30	30	160.6221772
35	05	30	05	30	50	032.0634640
35	05	30	15	30	10	052.2584420
35	05	30	15	30	30	041.3639666
35	05	30	15	30	50	-017.4121318
35	05	30	15	50	30	-072.8694219

35	05	30	15	50	50	-063.3980677
35	05	40	05	40	20	002.0952403
35	05	40	05	40	40	135.8441005
35	05	40	05	40	60	054.0525954
35	05	40	15	20	20	060.9062454
35	05	40	15	20	40	088.7676296
35	05	40	15	40	20	-012.7175672
35	05	40	15	40	40	-035.7379788
35	05	40	15	40	60	-020.5043560
35	15	20	05	40	20	060.9062544
35	15	20	05	40	40	088.7675902
35	15	20	15	20	00	078.9331692
35	15	20	15	20	20	195.1563929
35	15	20	15	20	40	027.6244613
35	15	20	15	40	20	-051.4751931
35	15	20	15	40	40	-075.0223111
35	15	30	05	30	10	052.2584420
35	15	30	05	30	30	041.3639550
35	15	30	05	30	50	-017.4121406
35	15	30	15	30	10	010.9714212
35	15	30	15	30	30	112.8591808
35	15	30	15	30	50	052.1692677
35	15	30	15	50	30	-042.0711791
35	15	30	15	50	50	-036.6029162
35	15	40	05	40	20	-012.7175672
35	15	40	05	40	40	-035.7379492
35	15	40	05	40	60	-020.5043560
35	15	40	15	20	20	-051.4751983
35	15	40	15	20	40	-075.0223431
35	15	40	15	40	20	-002.2041056
35	15	40	15	40	40	123.7624133
35	15	40	15	40	60	047.1208342
35	15	50	05	30	30	-072.8693873
35	15	50	05	30	50	-097.5417307
35	15	50	15	30	30	-042.0711758
35	15	50	15	30	50	-056.3157444
35	15	50	15	50	30	012.3367009
35	15	50	15	50	50	165.3901320
35	15	50	15	50	70	110.8811466
45	05	40	05	40	20	079.2380798
45	05	40	05	40	40	156.8830311
45	05	40	05	40	60	016.6275044
45	05	40	15	40	20	055.5929474
45	05	40	15	40	40	038.1861945
45	05	40	15	40	60	-007.9381896
45	05	40	15	60	40	-054.8523931
45	05	40	15	60	60	-074.4438141
45	05	50	05	50	30	004.0404095
45	05	50	05	50	50	122.8186442
45	05	50	05	50	70	080.1864918
45	05	50	15	30	30	065.1763580
45	05	50	15	30	50	087.2439998
45	05	50	15	50	30	-010.1608506
45	05	50	15	50	50	-052.1393160
45	05	50	15	50	70	-037.5931518

45	15	30	05	50	30	065.1763872
45	15	30	05	50	50	056.7049630
45	15	30	15	30	10	101.4856894
45	15	30	15	30	30	184.5036286
45	15	30	15	30	50	022.0105339
45	15	30	15	50	30	-053.2163199
45	15	30	15	50	50	-046.2994118
45	15	40	05	40	20	055.5929474
45	15	40	05	40	40	038.1862025
45	15	40	05	40	60	-007.9381896
45	15	40	15	40	20	020.5714110
45	15	40	15	40	40	116.5854249
45	15	40	15	40	60	025.0045896
45	15	40	15	60	40	-033.0772510
45	15	40	15	60	60	-044.8913002
45	15	50	05	50	30	-010.1608506
45	15	50	05	50	50	-052.1393160
45	15	50	05	50	70	-037.5931518
45	15	50	15	30	30	-053.2163109
45	15	50	15	30	50	-071.2344138
45	15	50	15	50	30	-000.1077584
45	15	50	15	50	50	101.5327990
45	15	50	15	50	70	064.8391330
45	15	60	05	40	40	-074.4263356
45	15	60	05	40	60	-060.1739836
45	15	60	15	40	40	-044.8807633
45	15	60	15	40	60	-036.2862710
45	15	60	15	60	40	005.4733368
45	15	60	15	60	60	164.7403678
45	15	60	15	60	80	055.5853564

TABLE XIV.

$$A_{\mathbf{g}}^{-}(J; S' \ell'; S \ell; n)$$

$$= \sum_L \{A_2^{-}(J; S' \ell'; S \ell; L) + A_{\mathbf{g}}^{-}(J; S' \ell'; S \ell; L)\} B(\ell L; n)$$

05	05	00	05	00	10	079.9999501
05	05	00	15	20	10	-039.5979781
05	05	00	15	20	30	-016.9705620
05	05	10	05	10	00	002.6666692
05	05	10	05	10	20	077.3333300
05	05	10	15	10	00	-024.5130333
05	05	10	15	10	20	-032.0555028
05	15	10	05	10	00	-024.5130333
05	15	10	05	10	20	-032.0555028
05	15	10	15	10	00	019.9999983
05	15	10	15	10	20	099.9999920
05	15	20	05	00	10	-056.5685001
05	15	20	15	20	10	021.5999901
05	15	20	15	20	30	098.3999954
15	05	10	05	10	00	038.6666625
15	05	10	05	10	20	041.3333276
15	05	10	15	10	00	023.8513917
15	05	10	15	10	20	-005.9628468
15	05	10	15	30	20	-038.3325894
15	05	10	15	30	40	-015.3330357
15	05	20	05	20	10	010.4000289
15	05	20	05	20	30	069.5999964
15	05	20	15	00	10	039.9999500
15	05	20	15	20	10	-011.1999512
15	05	20	15	20	30	-028.7999950
15	15	00	05	20	10	027.9999966
15	15	00	05	20	30	011.9999985
15	15	00	15	00	10	079.9999001
15	15	00	15	20	10	-028.0000001
15	15	00	15	20	30	-012.0000000
15	15	10	05	10	00	023.8513917
15	15	10	05	10	20	-005.9628468
15	15	10	15	10	00	-004.0000017
15	15	10	15	10	20	051.9999908
15	15	10	15	30	20	-017.1428565
15	15	10	15	30	40	-006.8571425
15	15	20	05	20	10	-011.1999512
15	15	20	05	20	30	-028.7999950
15	15	20	15	00	10	-039.9999500
15	15	20	15	20	10	010.3999889
15	15	20	15	20	30	069.5999884
15	15	30	05	10	00	-008.9442675
15	15	30	05	10	20	-044.7213536
15	15	30	15	10	00	-003.9999967
15	15	30	15	10	20	-019.9999983
15	15	30	15	30	20	023.8628539
15	15	30	15	30	40	001.8285711
25	05	20	05	20	10	046.3999575
25	05	20	05	20	30	033.5999928
25	05	20	15	20	10	025.2294522
25	05	20	15	20	30	-003.8485613
25	05	20	15	40	30	-037.8244282
25	05	20	15	40	50	-014.5478569
25	05	30	05	30	20	013.7142830
25	05	30	05	30	40	066.2857109

25	05	30	15	10	00	007.3029625
25	05	30	15	10	20	036.5148326
25	05	30	15	30	20	-007.6665164
25	05	30	15	30	40	-028.1105655
25	15	10	05	30	20	031.2984236
25	15	10	05	30	40	012.5193715
25	15	10	15	10	00	049.3333258
25	15	10	15	10	20	038.6666553
25	15	10	15	30	20	-027.9941640
25	15	10	15	30	40	-011.1976661
25	15	20	05	20	10	025.2294522
25	15	20	05	20	30	-003.8485613
25	15	20	15	20	10	012.6857087
25	15	20	15	20	30	038.7428475
25	15	20	15	40	30	-020.2180114
25	15	20	15	40	50	-007.7761576
25	15	30	05	30	20	-007.6665164
25	15	30	05	30	40	-028.1105655
25	15	30	15	10	00	-006.5319709
25	15	30	15	10	20	-032.6598552
25	15	30	15	30	20	011.9999946
25	15	30	15	30	40	059.9999903
25	15	40	05	20	10	-010.4744570
25	15	40	05	20	30	-041.8978281
25	15	40	15	20	10	-005.5988317
25	15	40	15	20	30	-022.3953334
25	15	40	15	40	30	020.6349177
25	15	40	15	40	50	033.9305004
35	05	30	05	30	20	034.6285653
35	05	30	05	30	40	014.2857127
35	05	30	15	30	20	025.7333266
35	05	30	15	30	40	-002.6393126
35	05	30	15	50	40	-025.6880761
35	05	30	15	50	60	-005.8671839
35	05	40	05	40	30	015.5555547
35	05	40	05	40	50	028.4404395
35	05	40	15	20	10	009.0711460
35	05	40	15	20	30	036.2845841
35	05	40	15	40	30	-006.0099835
35	05	40	15	40	50	-006.4959307
35	15	20	05	40	30	032.7569163
35	15	20	05	40	50	012.5988139
35	15	20	15	20	10	059.8856312
35	15	20	15	20	30	031.5428490
35	15	20	15	40	30	-027.6846438
35	15	20	15	40	50	-010.6479384
35	15	30	05	30	20	025.7333266
35	15	30	05	30	40	-002.6393126
35	15	30	15	30	20	019.9999929
35	15	30	15	30	40	033.3333221
35	15	30	15	50	40	-014.8310194
35	15	30	15	50	60	-003.3874216
35	15	40	05	40	30	-006.0099835
35	15	40	05	40	50	-006.4959307
35	15	40	15	20	10	-007.6665183

35	15	40	15	20	30	-030.6660678
35	15	40	15	40	30	013.5238016
35	15	40	15	40	50	026.2444095
35	15	50	05	30	20	-011.0656640
35	15	50	05	30	40	-040.5741060
35	15	50	15	30	20	-006.3887657
35	15	50	15	30	40	-023.4254763
35	15	50	15	50	40	019.8113225
35	15	50	15	50	60	000.5127366
45	05	40	05	40	30	051.5555492
45	05	40	05	40	50	016.7431402
45	05	40	15	40	30	025.9969769
45	05	40	15	40	50	-002.4188497
45	05	40	15	60	50	-019.0958859
45	05	40	15	60	70	-008.8024940
45	05	50	05	50	40	010.9286091
45	05	50	05	50	60	002.8666579
45	05	50	15	30	20	009.8974286
45	05	50	15	30	40	036.2905814
45	05	50	15	50	40	-010.8790577
45	05	50	15	50	60	002.8829537
45	15	30	05	50	40	022.9761133
45	15	30	05	50	60	005.2477707
45	15	30	15	30	20	064.5714147
45	15	30	15	30	40	028.7618884
45	15	30	15	50	40	-018.7599195
45	15	30	15	50	60	-004.2847855
45	15	40	05	40	30	025.9969793
45	15	40	05	40	50	-002.4188481
45	15	40	15	40	30	024.1211967
45	15	40	15	40	50	019.2957204
45	15	40	15	60	50	-011.5152578
45	15	40	15	60	70	-005.3081041
45	15	50	05	50	40	-010.8790577
45	15	50	05	50	60	002.8829537
45	15	50	15	30	20	-008.0812215
45	15	50	15	30	40	-029.6311375
45	15	50	15	50	40	006.4872363
45	15	50	15	50	60	004.0436157
45	15	60	05	40	30	-011.3707000
45	15	60	05	40	50	-019.6477540
45	15	60	15	40	30	-006.8567920
45	15	60	15	40	50	-011.8480430
45	15	60	15	60	50	008.6207445
45	15	60	15	60	70	001.0759735

TABLE XV.

$$A_{\mathfrak{g}}^{-}(J; S' l'; S l; n)$$

$$= \sum_L \{ A_2^{-}(J; S' l'; S l; L) + A_{\mathfrak{g}}^{-}(J; S' l'; S l; L) \} B(l' L; n)$$

05	05	00	05	00	10	079.9999501
05	05	00	15	20	10	-056.5685401
05	05	10	05	10	00	002.6666692
05	05	10	05	10	20	077.3333300
05	05	10	15	10	00	-024.5130333
05	05	10	15	10	20	-032.0555028
05	15	10	05	10	00	-024.5130333
05	15	10	05	10	20	-032.0555028
05	15	10	15	10	00	019.9999983
05	15	10	15	10	20	099.9999920
05	15	20	05	00	10	-039.5979501
05	15	20	05	00	30	-016.9705500
05	15	20	15	20	10	021.5999901
05	15	20	15	20	30	098.3999954
15	05	10	05	10	00	038.6666625
15	05	10	05	10	20	041.3333276
15	05	10	15	10	00	023.8513917
15	05	10	15	10	20	-005.9628468
15	05	10	15	30	00	-008.9442709
15	05	10	15	30	20	-044.7213542
15	05	20	05	20	10	010.4000289
15	05	20	05	20	30	069.5999964
15	05	20	15	00	10	027.9999651
15	05	20	15	00	30	011.9999850
15	05	20	15	20	10	-011.1999512
15	05	20	15	20	30	-028.7999950
15	15	00	05	20	10	039.9999950
15	15	00	15	00	10	079.9999001
15	15	00	15	20	10	-040.0000000
15	15	10	05	10	00	023.8513917
15	15	10	05	10	20	-005.9628468
15	15	10	15	10	00	-004.0000017
15	15	10	15	10	20	051.9999908
15	15	10	15	30	00	-004.0000000
15	15	10	15	30	20	-019.9999990
15	15	20	05	20	10	-011.1999512
15	15	20	05	20	30	-028.7999950
15	15	20	15	00	10	-027.9999651
15	15	20	15	00	30	-011.9999850
15	15	20	15	20	10	010.3999889
15	15	20	15	20	30	069.5999884
15	15	30	05	10	20	-038.3325854
15	15	30	05	10	40	-015.3330357
15	15	30	15	10	20	-017.1428525
15	15	30	15	10	40	-006.8571425
15	15	30	15	30	20	023.8628539
15	15	30	15	30	40	001.8285711
25	05	20	05	20	10	046.3999575
25	05	20	05	20	30	033.5999928
25	05	20	15	20	10	025.2294522
25	05	20	15	20	30	-003.8485613
25	05	20	15	40	10	-010.4744570
25	05	20	15	40	30	-041.8978281
25	05	30	05	30	20	013.7142830
25	05	30	05	30	40	066.2857109

25	05	30	15	10	20	031.2984236
25	05	30	15	10	40	012.5193715
25	05	30	15	30	20	-007.6665164
25	05	30	15	30	40	-028.1105655
25	15	10	05	30	00	007.3029625
25	15	10	05	30	20	036.5148326
25	15	10	15	10	00	049.3333258
25	15	10	15	10	20	038.6666553
25	15	10	15	30	00	-006.5319709
25	15	10	15	30	20	-032.6598592
25	15	20	05	20	10	025.2294522
25	15	20	05	20	30	-003.8485613
25	15	20	15	20	10	012.6857087
25	15	20	15	20	30	038.7428475
25	15	20	15	40	10	-005.5988345
25	15	20	15	40	30	-022.3953346
25	15	30	05	30	20	-007.6665164
25	15	30	05	30	40	-028.1105655
25	15	30	15	10	20	-027.9941614
25	15	30	15	10	40	-011.1976646
25	15	30	15	30	20	011.9999946
25	15	30	15	30	40	059.9999903
25	15	40	05	20	30	-037.8244282
25	15	40	05	20	50	-014.5478569
25	15	40	15	20	30	-020.2180074
25	15	40	15	20	50	-007.7761576
25	15	40	15	40	30	020.6349177
25	15	40	15	40	50	033.9305004
35	05	30	05	30	20	034.6285653
35	05	30	05	30	40	014.2857127
35	05	30	15	30	20	025.7333266
35	05	30	15	30	40	-002.6393126
35	05	30	15	50	20	-011.0656640
35	05	30	15	50	40	-020.4895961
35	05	40	05	40	30	015.5555547
35	05	40	05	40	50	028.4404395
35	05	40	15	20	30	032.7569163
35	05	40	15	20	50	012.5988139
35	05	40	15	40	30	-006.0099835
35	05	40	15	40	50	-006.4959307
35	15	20	05	40	10	009.0711460
35	15	20	05	40	30	036.2845841
35	15	20	15	20	10	059.8856312
35	15	20	15	20	30	031.5428490
35	15	20	15	40	10	-007.6665183
35	15	20	15	40	30	-030.6660638
35	15	30	05	30	20	025.7333266
35	15	30	05	30	40	-002.6393126
35	15	30	15	30	20	019.9999929
35	15	30	15	30	40	033.3333221
35	15	30	15	50	20	-006.3887638
35	15	30	15	50	40	-011.8296772
35	15	40	05	40	30	-006.0099835
35	15	40	05	40	50	-006.4959307
35	15	40	15	20	30	-027.6846462

35	15	40	15	20	50	-010.6479399
35	15	40	15	40	30	013.5238016
35	15	40	15	40	50	026.2444095
35	15	50	05	30	40	-037.5561957
35	15	50	05	30	60	-014.0835744
35	15	50	15	30	40	-021.6830848
35	15	50	15	30	60	-008.1311572
35	15	50	15	50	40	019.8113225
35	15	50	15	50	60	000.5127366
45	05	40	05	40	30	051.5555492
45	05	40	05	40	50	016.7431402
45	05	40	15	40	30	025.9969769
45	05	40	15	40	50	-002.4188497
45	05	40	15	60	30	-004.3342964
45	05	40	15	60	50	-023.5640836
45	05	50	05	50	40	010.9286091
45	05	50	05	50	60	002.8666579
45	05	50	15	30	40	033.5912786
45	05	50	15	30	60	012.5967314
45	05	50	15	50	40	-010.8790577
45	05	50	15	50	60	002.8829537
45	15	30	05	50	20	009.8974286
45	15	30	05	50	40	018.3264554
45	15	30	15	30	20	064.5714147
45	15	30	15	30	40	028.7618884
45	15	30	15	50	20	-008.0812190
45	15	30	15	50	40	-014.9634861
45	15	40	05	40	30	025.9969793
45	15	40	05	40	50	-002.4188481
45	15	40	15	40	30	024.1211967
45	15	40	15	40	50	019.2957204
45	15	40	15	60	30	-002.6136819
45	15	40	15	60	50	-014.2096801
45	15	50	05	50	40	-010.8790577
45	15	50	05	50	60	002.8829537
45	15	50	15	30	40	-027.4271713
45	15	50	15	30	60	-010.2851877
45	15	50	15	50	40	006.4872363
45	15	50	15	50	60	004.0436157
45	15	60	05	40	50	-025.7672849
45	15	60	05	40	70	-005.2511690
45	15	60	15	40	50	-015.5382608
45	15	60	15	40	70	-003.1665742
45	15	60	15	60	50	008.6207445
45	15	60	15	60	70	001.0759735

TABLE XVI.

$${}_{234} A (J; S' l'; S l; n)$$

$$= A_2 (J; S' l'; S l; n) + 4 A_3 (J; S' l'; S l; n) - 2 A_4 (J; S' l'; S l; n)$$

05	05	0	05	00	00	-053.3331696
05	05	0	05	00	20	-078.6662640
05	05	0	15	20	00	-052.7967918
05	05	0	15	20	20	-133.8776372
05	05	0	05	10	10	-048.7995037
05	05	0	05	10	30	-083.1996198
05	05	0	15	10	10	-136.8956368
05	05	0	15	10	30	-049.7807624
05	15	0	05	10	10	068.4472452
05	15	0	05	10	30	024.8904762
05	15	0	15	10	10	-023.9997522
05	15	0	15	10	30	023.9993888
05	15	0	05	00	00	026.3983650
05	15	0	05	00	20	066.9385740
05	15	0	15	20	00	032.7993752
05	15	0	15	20	20	-038.2868695
05	15	0	15	20	40	005.4851502
15	05	0	05	10	10	-102.7985391
15	05	0	05	10	30	-029.1996193
15	05	0	15	10	10	091.5899272
15	05	0	15	10	30	-032.5566769
15	05	0	15	30	10	-065.4711009
15	05	0	15	30	30	-111.6230282
15	05	0	05	20	00	002.2669094
15	05	0	05	20	20	-062.9513289
15	05	0	05	20	40	-071.3137102
15	05	0	15	00	00	037.3329886
15	05	0	15	00	20	094.6661164
15	05	0	15	20	00	-022.1336254
15	05	0	15	20	20	-049.5226422
15	05	0	15	20	40	-060.3434178
15	15	0	05	20	00	-018.6663364
15	15	0	05	20	20	-047.3325641
15	15	0	15	00	00	026.6665300
15	15	0	15	00	20	039.3329554
15	15	0	15	20	00	018.6663364
15	15	0	15	20	20	047.3325726
15	15	0	05	10	10	-045.7943647
15	15	0	05	10	30	016.2779591
15	15	0	15	10	10	084.7189658
15	15	0	15	10	30	034.0793755
15	15	0	15	30	10	-028.5604086
15	15	0	15	30	30	068.1600331
15	15	0	05	20	00	011.0671376
15	15	0	05	20	20	024.7605902
15	15	0	05	20	40	030.1718314
15	15	0	15	00	00	018.6662752
15	15	0	15	00	20	047.3326870
15	15	0	15	20	00	-046.1333372
15	15	0	15	20	20	076.4759021
15	15	0	15	20	40	035.6567286
15	15	0	05	10	10	032.7351204

15	15	0	05	10	30	055.8110424
15	15	0	15	10	10	-028.5605788
15	15	0	15	10	30	068.1598329
15	15	0	15	30	10	014.0227372
15	15	0	15	30	30	-003.3448994
15	15	0	15	30	50	005.0771986
25	05	0	05	20	00	-027.7329356
25	05	0	05	20	20	-084.3789221
25	05	0	05	20	40	-019.8851292
25	05	0	15	20	00	043.9024914
25	05	0	15	20	20	049.3807042
25	05	0	15	20	40	-022.7236589
25	05	0	15	40	20	-070.3276646
25	05	0	15	40	40	-102.4982267
25	05	0	05	30	10	000.3430747
25	05	0	05	30	30	-066.3088597
25	05	0	05	30	50	-066.0295746
25	05	0	15	10	10	053.4568967
25	05	0	15	10	30	091.1395326
25	05	0	15	30	10	-016.5608090
25	05	0	15	30	30	-039.0375706
25	05	0	15	30	50	-062.4682332
25	15	0	05	30	10	-026.7280553
25	15	0	05	30	30	-045.5685099
25	15	0	15	10	10	036.3190853
25	15	0	15	10	30	016.4796150
25	15	0	15	30	10	041.5428003
25	15	0	15	30	30	023.1208996
25	15	0	05	20	00	-021.9514508
25	15	0	05	20	20	-024.6908379
25	15	0	05	20	40	011.3610908
25	15	0	15	20	00	043.2003232
25	15	0	15	20	20	042.1207373
25	15	0	15	20	40	027.8203266
25	15	0	15	40	20	-026.1939474
25	15	0	15	40	40	072.3833948
25	15	0	05	30	10	008.2809802
25	15	0	05	30	30	019.5186403
25	15	0	05	30	50	031.2342576
25	15	0	15	10	10	041.5433375
25	15	0	15	10	30	023.1227442
25	15	0	15	30	10	-030.7204967
25	15	0	15	30	30	069.9168614
25	15	0	15	30	50	039.9979576
25	15	0	05	20	20	035.1631681
25	15	0	05	20	40	051.2488525
25	15	0	15	20	20	-026.1949262
25	15	0	15	20	40	072.3854018
25	15	0	15	40	20	008.9245586
25	15	0	15	40	40	005.0823046
25	15	0	15	40	60	004.8470160
35	05	0	05	30	10	-035.6569178
35	05	0	05	30	30	-056.1732136
35	05	0	05	30	50	-005.0771986
35	05	0	15	30	10	052.2592246

35	05	0	15	30	30	041.3640420
35	05	0	15	30	50	-017.4118798
35	05	0	15	50	30	-072.8668749
35	05	0	15	50	50	-063.3934099
35	05	0	05	40	20	-001.0470940
35	05	0	05	40	40	-067.9195297
35	05	0	05	40	60	-027.0248240
35	05	0	15	20	20	060.9057776
35	05	0	15	20	40	088.7658316
35	05	0	15	40	20	-012.7186944
35	05	0	15	40	40	-035.7391882
35	05	0	15	40	60	-020.5048458
35	15	0	05	40	20	-030.4516561
35	15	0	05	40	40	-044.3818394
35	15	0	15	20	00	002.1330156
35	15	0	15	20	20	034.5017853
35	15	0	15	20	40	010.5056334
35	15	0	15	40	20	050.3801019
35	15	0	15	40	40	012.8690213
35	15	0	05	30	10	-026.1303330
35	15	0	05	30	30	-020.6836190
35	15	0	05	30	50	008.7049215
35	15	0	15	30	10	048.0008216
35	15	0	15	30	30	039.0356192
35	15	0	15	30	50	022.9613925
35	15	0	15	50	30	-023.6849995
35	15	0	15	50	50	036.9312486
35	15	0	05	40	20	006.3593468
35	15	0	05	40	40	017.8705845
35	15	0	05	40	60	010.2538978
35	15	0	15	20	20	050.3792143
35	15	0	15	20	40	012.8671709
35	15	0	15	40	20	-022.1239446
35	15	0	15	40	40	064.7951233
35	15	0	15	40	60	016.9767034
35	15	0	05	30	30	036.4338287
35	15	0	05	30	50	048.7685063
35	15	0	15	30	30	-023.6850282
35	15	0	15	30	50	072.8807996
35	15	0	15	50	30	006.8598290
35	15	0	15	50	50	005.2522700
35	15	0	15	50	70	004.6984288
45	05	0	05	40	20	-039.6185140
45	05	0	05	40	40	-078.4367068
45	05	0	05	40	60	-008.3122940
45	05	0	15	40	20	055.5937788
45	05	0	15	40	40	038.1865397
45	05	0	15	40	60	-007.9377460
45	05	0	15	60	40	-054.8500707
45	05	0	15	60	60	-074.4398959
45	05	0	05	50	30	-002.0195958
45	05	0	05	50	50	-061.4089585
45	05	0	05	50	70	-040.0923808
45	05	0	15	30	30	065.1741320
45	05	0	15	30	50	087.2402030

45	05	0	15	50	30	-010.1625328
45	05	0	15	50	50	-052.1405950
45	05	0	15	50	70	-037.5965088
45	15	0	05	50	30	-032.5858707
45	15	0	05	50	50	-028.3502304
45	15	0	15	30	10	002.7426378
45	15	0	15	30	30	033.2123898
45	15	0	15	30	50	008.0409108
45	15	0	15	50	30	054.8918467
45	15	0	15	50	50	011.3660910
45	15	0	05	40	20	-027.7975388
45	15	0	05	40	40	-019.0934464
45	15	0	05	40	60	003.9672298
45	15	0	15	40	20	049.1433660
45	15	0	15	40	40	039.2841558
45	15	0	15	40	60	007.6228946
45	15	0	15	60	40	-000.3014030
45	15	0	15	60	60	050.6758078
45	15	0	05	50	30	005.0812624
45	15	0	05	50	50	026.0715695
45	15	0	05	50	70	018.8000710
45	15	0	15	30	30	054.8922603
45	15	0	15	30	50	007.3342754
45	15	0	15	50	30	-016.9176700
45	15	0	15	50	50	049.6790067
45	15	0	15	50	70	027.7171646
45	15	0	05	40	40	037.2109676
45	15	0	05	40	60	030.0830639
45	15	0	15	40	40	-021.7385789
45	15	0	15	40	60	034.9832078
45	15	0	15	60	40	004.9144526
45	15	0	15	60	60	009.6364286
45	15	0	15	60	80	004.5907170

TABLE XVII.

$$A_8 (J; S' l'; S l; n)$$

This coefficient is obtained from the definition of A_8^- , when A_2 and A_3 are substituted in place of A_2^- and A_3^- .

J	S'	l'	S	l	n	A ₈
05	05	00	05	00	10	-39.99995006
05	05	00	15	20	10	-39.59797814
05	05	00	15	20	30	-16.97056197
05	05	10	05	10	00	-01.33333583
05	05	10	05	10	20	-38.66666329
05	05	10	15	10	00	-24.51303333
05	05	10	15	10	20	-32.05550274
05	15	10	05	10	00	12.25651500
05	15	10	05	10	20	16.02775104
05	15	10	15	10	00	-07.99999333
05	15	10	15	10	20	08.00000136
05	15	20	05	00	10	28.28425004
05	15	20	15	20	10	02.39993207
05	15	20	15	20	30	-02.39999509
15	05	10	05	10	00	-19.33332916
15	05	10	05	10	20	-20.66666088
15	05	10	15	10	00	23.85139166
15	05	10	15	10	20	-05.96284671
15	05	10	15	30	20	-38.33258935
15	05	10	15	30	40	-15.33303573
15	05	20	05	20	10	-05.20002772
15	05	20	05	20	30	-34.79999746
15	05	20	15	00	10	39.99995006
15	05	20	15	20	10	-11.19995116
15	05	20	15	20	30	-28.79999497
15	15	00	05	20	10	-13.99999655
15	15	00	05	20	30	-05.99999849
15	15	00	15	00	10	20.00000003
15	15	00	15	20	10	14.00000005
15	15	00	15	20	30	05.99999999
15	15	10	05	10	00	-11.92569416
15	15	10	05	10	20	02.98142419
15	15	10	15	10	00	14.79999333
15	15	10	15	10	20	21.19999772
15	15	10	15	30	20	02.40000151
15	15	10	15	30	40	09.59999751
15	15	20	05	20	10	05.59995198
15	15	20	05	20	30	14.39999808
15	15	20	15	00	10	19.99995003
15	15	20	15	20	10	-02.79993284
15	15	20	15	20	30	22.79999597
15	15	30	05	10	00	04.47213334
15	15	30	05	10	20	22.36067672
15	15	30	15	10	00	-12.39999833
15	15	30	15	10	20	24.39999342
15	15	30	15	30	20	04.73142393
15	15	30	15	30	40	01.82857107
25	05	20	05	20	10	-23.19995872
25	05	20	05	20	30	-16.79999235
25	05	20	15	20	10	25.22945219
25	05	20	15	20	30	-03.84856122
25	05	20	15	40	30	-37.82442825
25	05	20	15	40	50	-14.54785693
25	05	30	05	30	20	-06.85714066
25	05	30	05	30	40	-33.14285330

τ	s'	ℓ'	s	ℓ	n	A_g
25	05	30	15	10	00	07.30296250
25	05	30	15	10	20	36.51483260
25	05	30	15	30	20	-07.66651643
25	05	30	15	30	40	-28.11056550
25	15	10	05	30	20	-15.64920610
25	15	10	05	30	40	-06.25968394
25	15	10	15	10	00	06.13333249
25	15	10	15	10	20	09.86666653
25	15	10	15	30	20	16.51655646
25	15	10	15	30	40	03.07935857
25	15	20	05	20	10	-12.61470470
25	15	20	05	20	30	01.92427971
25	15	20	15	20	10	19.19991968
25	15	20	15	20	30	15.08571338
25	15	20	15	40	30	03.11046541
25	15	20	15	40	50	10.88661855
25	15	30	05	30	20	03.83325623
25	15	30	05	30	40	14.05528075
25	15	30	15	10	00	09.14475916
25	15	30	15	10	20	10.45115186
25	15	30	15	30	20	-00.34285671
25	15	30	15	30	40	24.34285568
25	15	40	05	20	10	05.23722851
25	15	40	05	20	30	20.94891159
25	15	40	15	20	10	-09.79795743
25	15	40	15	20	30	23.79503755
25	15	40	15	40	30	03.49204957
25	15	40	15	40	50	02.22221844
35	05	30	05	30	20	-17.31428202
35	05	30	05	30	40	-07.14285499
35	05	30	15	30	20	25.73332660
35	05	30	15	30	40	-02.63931258
35	05	30	15	50	40	-25.68807621
35	05	30	15	50	60	-05.86718387
35	05	40	05	40	30	-07.77777465
35	05	40	05	40	50	-14.22021438
35	05	40	15	20	10	09.07114604
35	05	40	15	20	30	36.28458415
35	05	40	15	40	30	-06.00998340
35	05	40	15	40	50	-06.49593066
35	15	20	05	40	30	-16.37845009
35	15	20	05	40	50	-06.29940499
35	15	20	15	20	10	06.39999992
35	15	20	15	20	30	07.88571512
35	15	20	15	40	30	17.67557583
35	15	20	15	40	50	01.49071028
35	15	30	05	30	20	-12.86666259
35	15	30	05	30	40	01.31965357
35	15	30	15	30	20	20.85713761
35	15	30	15	30	40	12.47619540
35	15	30	15	50	40	-06.06937904
35	15	30	15	50	60	04.74238801
35	15	40	05	40	30	03.00499254
35	15	40	05	40	50	03.24796449
35	15	40	15	20	10	10.73312173

J	S'	ℓ'	S	ℓ	n	A_g
35	15	40	15	20	30	08.43316831
35	15	40	15	40	30	01.04762916
35	15	40	15	40	50	12.06526782
35	15	50	05	30	20	05.53283036
35	15	50	05	30	40	20.28704961
35	15	50	15	30	20	-08.30539159
35	15	50	15	30	40	23.21250752
35	15	50	15	50	40	01.30609528
35	15	50	15	50	60	01.21191873
45	05	40	05	40	30	-25.77777060
45	05	40	05	40	50	-08.37156555
45	05	40	15	40	30	25.99697692
45	05	40	15	40	50	-02.41884972
45	05	40	15	60	50	-19.09588592
45	05	40	15	60	70	-08.80249397
45	05	50	05	50	40	-05.46430287
45	05	50	05	50	60	-01.43332814
45	05	50	15	30	20	09.89742859
45	05	50	15	30	40	36.29058138
45	05	50	15	50	40	-10.87905768
45	05	50	15	50	60	02.88295364
45	15	30	05	50	40	-11.48805049
45	15	30	05	50	60	-02.62388455
45	15	30	15	30	20	06.28571315
45	15	30	15	30	40	07.04761686
45	15	30	15	50	40	17.90855343
45	15	30	15	50	60	00.21423763
45	15	40	05	40	30	-12.99848844
45	15	40	05	40	50	01.20942233
45	15	40	15	40	30	21.69696128
45	15	40	15	40	50	02.84757489
45	15	40	15	60	50	05.53594887
45	15	40	15	60	70	07.43134102
45	15	50	05	50	40	05.43952744
45	15	50	05	50	60	-01.44147641
45	15	50	15	30	20	11.31370395
45	15	50	15	30	40	07.54246707
45	15	50	15	50	40	-01.07779197
45	15	50	15	50	60	01.49159496
45	15	60	05	40	30	05.68535002
45	15	60	05	40	50	09.82387500
45	15	60	15	40	30	-07.37104931
45	15	60	15	40	50	05.78781427
45	15	60	15	60	50	02.67352407
45	15	60	15	60	70	02.12692191

TABLE XVIII.

$$A_g(J; S' l'; S l; n)$$

This coefficient is obtained from A_g^- .

J	s'	e'	s	e	n	A_9
05	05	00	05	00	10	-39.99995006
05	05	00	15	20	10	-56.56854009
05	05	10	05	10	00	-01.33333583
05	05	10	05	10	20	-38.66666329
05	05	10	15	10	00	-24.51303333
05	05	10	15	10	20	-32.05550274
05	15	10	05	10	00	12.25651500
05	15	10	05	10	20	16.02775104
05	15	10	15	10	00	-07.99999333
05	15	10	15	10	20	08.00000136
05	15	20	05	00	10	19.79897507
05	15	20	05	00	30	08.48527499
05	15	20	15	20	10	02.39993207
05	15	20	15	20	30	-02.39999509
15	05	10	05	10	00	-19.33332916
15	05	10	05	10	20	-20.66666088
15	05	10	15	10	00	23.85139166
15	05	10	15	10	20	-05.96284671
15	05	10	15	30	00	-08.94427083
15	05	10	15	30	20	-44.72135429
15	05	20	05	20	10	-05.20002772
15	05	20	05	20	30	-34.79999746
15	05	20	15	00	10	27.99996510
15	05	20	15	00	30	11.99998498
15	05	20	15	20	10	-11.19995116
15	05	20	15	20	30	-28.79999497
15	15	00	05	20	10	-19.99999503
15	15	00	15	00	10	20.00000003
15	15	00	15	20	10	20.00000003
15	15	10	05	10	00	-11.92569416
15	15	10	05	10	20	02.98142419
15	15	10	15	10	00	14.79999333
15	15	10	15	10	20	21.19999772
15	15	10	15	30	00	-12.39999500
15	15	10	15	30	20	24.39999409
15	15	20	05	20	10	05.59995198
15	15	20	05	20	30	14.39999808
15	15	20	15	00	10	13.99996505
15	15	20	15	00	30	05.99998499
15	15	20	15	20	10	-02.79993284
15	15	20	15	20	30	22.79999597
15	15	30	05	10	20	19.16629217
15	15	30	05	10	40	07.66651786
15	15	30	15	10	20	02.39999751
15	15	30	15	10	40	09.59999751
15	15	30	15	30	20	04.73142393
15	15	30	15	30	40	01.82857107
25	05	20	05	20	10	-23.19995872
25	05	20	05	20	30	-16.79999235
25	05	20	15	20	10	25.22945219
25	05	20	15	20	30	-03.84856122
25	05	20	15	40	10	-10.47445704
25	05	20	15	40	30	-41.89782818
25	05	30	05	30	20	-06.85714066
25	05	30	05	30	40	-33.14285330

25	05	30	15	10	20	31.29842362
25	05	30	15	10	40	12.51937144
25	05	30	15	30	20	-07.66651643
25	05	30	15	30	40	-28.11056550
25	15	10	05	30	00	-03.65147916
25	15	10	05	30	20	-18.25741089
25	15	10	15	10	00	06.13333249
25	15	10	15	10	20	09.86666653
25	15	10	15	30	00	09.14475916
25	15	10	15	30	20	10.45115586
25	15	20	05	20	10	-12.61470470
25	15	20	05	20	30	01.92427971
25	15	20	15	20	10	19.19991968
25	15	20	15	20	30	15.08571338
25	15	20	15	40	10	-09.79795463
25	15	20	15	40	30	23.79503875
25	15	30	05	30	20	03.83325623
25	15	30	05	30	40	14.05528075
25	15	30	15	10	20	16.51655389
25	15	30	15	10	40	03.07935715
25	15	30	15	30	20	-00.34285671
25	15	30	15	30	40	24.34285568
25	15	40	05	20	30	18.91221260
25	15	40	05	20	50	07.27392749
25	15	40	15	20	30	03.11046141
25	15	40	15	20	50	10.88661855
25	15	40	15	40	30	03.49204957
25	15	40	15	40	50	02.22221844
35	05	30	05	30	20	-17.31428202
35	05	30	05	30	40	-07.14285499
35	05	30	15	30	20	25.73332660
35	05	30	15	30	40	-02.63931258
35	05	30	15	50	20	-11.06566395
35	05	30	15	50	40	-20.48959605
35	05	40	05	40	30	-07.77777465
35	05	40	05	40	50	-14.22021438
35	05	40	15	20	30	32.75691628
35	05	40	15	20	50	12.59881388
35	05	40	15	40	30	-06.00998340
35	05	40	15	40	50	-06.49593066
35	15	20	05	40	10	-04.53556951
35	15	20	05	40	30	-18.14228558
35	15	20	15	20	10	06.39999992
35	15	20	15	20	30	07.88571512
35	15	20	15	40	10	10.73312173
35	15	20	15	40	30	08.43316431
35	15	30	05	30	20	-12.86666259
35	15	30	05	30	40	01.31965357
35	15	30	15	30	20	20.85713761
35	15	30	15	30	40	12.47619540
35	15	30	15	50	20	-08.30538966
35	15	30	15	50	40	06.97839861
35	15	40	05	40	30	03.00499254
35	15	40	05	40	50	03.24796449
35	15	40	15	20	30	17.67557827

35	15	40	15	20	50	01.49071183
35	15	40	15	40	30	01.04762916
35	15	40	15	40	50	12.06526782
35	15	50	05	30	40	18.77809390
35	15	50	05	30	60	07.04178614
35	15	50	15	30	40	03.52350115
35	15	50	15	30	60	11.38361483
35	15	50	15	50	40	01.30609528
35	15	50	15	50	60	01.21191873
45	05	40	05	40	30	-25.77777060
45	05	40	05	40	50	-08.37156555
45	05	40	15	40	30	25.99697692
45	05	40	15	40	50	-02.41884972
45	05	40	15	60	30	-04.33429640
45	05	40	15	60	50	-23.56408359
45	05	50	05	50	40	-05.46430287
45	05	50	05	50	60	-01.43332814
45	05	50	15	30	40	33.59127870
45	05	50	15	30	60	12.59673138
45	05	50	15	50	40	-10.87905768
45	05	50	15	50	60	02.88295364
45	15	30	05	50	20	-04.94871108
45	15	30	05	50	40	-09.16322393
45	15	30	15	30	20	06.28571315
45	15	30	15	30	40	07.04761686
45	15	30	15	50	20	11.31370652
45	15	30	15	50	40	06.80908449
45	15	40	05	40	30	-12.99848844
45	15	40	05	40	50	01.20942233
45	15	40	15	40	30	21.69696128
45	15	40	15	40	50	02.84757489
45	15	40	15	60	30	-02.80970434
45	15	40	15	60	50	15.77699432
45	15	50	05	50	40	05.43952744
45	15	50	05	50	60	-01.44147641
45	15	50	15	30	40	18.34191270
45	15	50	15	30	60	00.51425836
45	15	50	15	50	40	-01.07779197
45	15	50	15	50	60	01.49159496
45	15	60	05	40	50	12.88364134
45	15	60	05	40	70	02.62558364
45	15	60	15	40	50	-06.01643896
45	15	60	15	40	70	04.43320389
45	15	60	15	60	50	02.67352407
45	15	60	15	60	70	02.12692191

TABLE XIX.

$$A_{234} (J; S' l'; S l; n)$$

$$= A_2 (J; S' l'; S l; n) + A_3 (J; S' l'; S l; n) + A_4 (J; S' l'; S l; n)$$

05	05	00	05	00	00	26.66658480
05	05	00	05	00	20	-14.66680050
05	05	00	15	20	00	26.39839590
05	05	00	15	20	20	-09.42871040
05	05	10	05	10	10	27.99974660
05	05	10	05	10	30	-16.00018410
05	05	10	15	10	10	32.80963940
05	05	10	15	10	30	-15.83896280
05	15	10	05	10	10	-16.40453610
05	15	10	05	10	30	07.91943390
05	15	10	15	10	10	-02.40011190
05	15	10	15	10	30	02.40030560
05	15	20	05	00	00	-13.19918250
05	15	20	05	00	20	04.71445050
05	15	20	15	20	00	01.60019990
05	15	20	15	20	20	01.14344000
05	15	20	15	20	40	-02.74256910
15	05	10	05	10	10	17.19927630
15	05	10	05	10	30	-05.20018360
15	05	10	15	10	10	-00.71583410
15	05	10	15	10	30	-04.65125530
15	05	10	15	30	10	18.24583170
15	05	10	15	30	30	-02.14736090
15	05	20	05	20	00	00.66649280
15	05	20	05	20	20	25.04709720
15	05	20	05	20	40	-13.71457090
15	05	20	15	00	00	-18.66649430
15	05	20	15	00	20	06.66687430
15	05	20	15	20	00	-14.13311980
15	05	20	15	20	20	45.33274710
15	05	20	15	20	40	-19.19971110
15	15	00	05	20	00	09.33316820
15	15	00	05	20	20	-03.33371120
15	15	00	15	00	00	-13.33326500
15	15	00	15	00	20	07.33352230
15	15	00	15	20	00	-09.33316820
15	15	00	15	20	20	03.33371370
15	15	10	05	10	10	00.35787060
15	15	10	05	10	30	02.32581770
15	15	10	15	10	10	-18.95949490
15	15	10	15	10	30	08.16031150
15	15	10	15	30	10	-12.71978520
15	15	10	15	30	30	09.11997220
15	15	20	05	20	00	07.06636370
15	15	20	05	20	20	-22.66600510
15	15	20	05	20	40	09.59979430
15	15	20	15	00	00	-09.33313760
15	15	20	15	00	20	03.33358900
15	15	20	15	20	00	-09.33321890
15	15	20	15	20	20	-03.52367230
15	15	20	15	20	40	06.8573 570

15	15	30	05	10	10	-09.12270420
15	15	30	05	10	30	01.07391630
15	15	30	15	10	10	-12.71970610
15	15	30	15	10	30	09.12007230
15	15	30	15	30	10	-01.61137460
15	15	30	15	30	30	01.67244970
15	15	30	15	30	50	-02.53859930
25	05	20	05	20	00	-05.33347220
25	05	20	05	20	20	20.76089230
25	05	20	05	20	40	-03.42885390
25	05	20	15	20	00	13.96865430
25	05	20	15	20	20	-19.65057260
25	05	20	15	20	40	-00.73364780
25	05	20	15	40	20	14.96309380
25	05	20	15	40	40	00.74726710
25	05	30	05	30	10	00.34274740
25	05	30	05	30	30	24.35443460
25	05	30	05	30	50	-12.69949470
25	05	30	15	10	10	-14.89764910
25	05	30	15	10	30	01.75345770
25	05	30	15	30	10	-12.87918050
25	05	30	15	30	30	43.48942880
25	05	30	15	30	50	-19.87600140
25	15	10	05	30	10	07.44863140
25	15	10	05	30	30	-00.87735030
25	15	10	15	10	10	-07.35954340
25	15	10	15	10	30	02.56019250
25	15	10	15	30	10	-03.13507890
25	15	10	15	30	30	-02.74228580
25	15	20	05	20	00	-06.98419460
25	15	20	05	20	20	09.82553220
25	15	20	05	20	40	00.36719060
25	15	20	15	20	00	11.99971840
25	15	20	15	20	20	-30.12159340
25	15	20	15	20	40	07.83677520
25	15	20	15	40	20	-12.99757980
25	15	20	15	40	40	08.79892010
25	15	30	05	30	10	06.43929940
25	15	30	05	30	30	-21.74464190
25	15	30	05	30	50	09.93792720
25	15	30	15	10	10	-03.13534750
25	15	30	15	10	30	-02.74321410
25	15	30	15	30	10	-05.21117240
25	15	30	15	30	30	-10.55844070
25	15	30	15	30	50	08.57245120
25	15	40	05	20	20	-07.48121480
25	15	40	05	20	40	-00.37350650
25	15	40	15	20	20	-12.99709640
25	15	40	15	20	40	08.79791660
25	15	40	15	40	20	-02.25820930
25	15	40	15	40	40	02.96903770
25	15	40	15	40	60	-02.42350800
35	05	30	05	30	10	-06.85725110
35	05	30	05	30	30	28.08660680
35	05	30	05	30	50	02.53859930

35	05	30	15	30	10	16.62729370
35	05	30	15	30	30	-24.83893500
35	05	30	15	30	50	01.28286740
35	05	30	15	50	30	13.19554320
35	05	30	15	50	50	12.33499820
35	05	40	05	40	20	00.09497300
35	05	40	05	40	40	24.02470910
35	05	40	05	40	60	-03.12094400
35	05	40	15	20	20	-12.95853580
35	05	40	15	20	40	-00.64703330
35	05	40	15	40	20	-11.75109330
35	05	40	15	40	40	41.97294710
35	05	40	15	40	60	-09.42843510
35	15	20	05	40	20	06.47865830
35	15	20	05	40	40	00.32298520
35	15	20	15	20	00	-01.06650780
35	15	20	15	20	20	-04.02640290
35	15	20	15	20	40	00.80840880
35	15	20	15	40	20	-00.54767970
35	15	20	15	40	40	-05.20239640
35	15	30	05	30	10	-08.31328350
35	15	30	05	30	30	12.42026350
35	15	30	05	30	50	-00.64092750
35	15	30	15	30	10	13.02815120
35	15	30	15	30	30	-30.11780710
35	15	30	15	30	50	07.09074000
35	15	30	15	50	30	-12.75423250
35	15	30	15	50	50	00.16518570
35	15	40	05	40	20	05.87554610
35	15	40	05	40	40	-20.98696500
35	15	40	05	40	60	04.71347710
35	15	40	15	20	20	-00.54723590
35	15	40	15	20	40	-05.20146520
35	15	40	15	40	20	-03.01964820
35	15	40	15	40	40	-14.14709240
35	15	40	15	40	60	03.15500230
35	15	50	05	30	30	-06.59797060
35	15	50	05	30	50	-01.14635890
35	15	50	15	30	30	-12.75422340
35	15	50	15	30	50	08.28094360
35	15	50	15	50	30	-02.42992900
35	15	50	15	50	50	00.70664000
35	15	50	15	50	70	-02.34921440
45	05	40	05	40	20	-07.61931100
45	05	40	05	40	40	21.91966340
45	05	40	05	40	60	00.62156200
45	05	40	15	40	20	17.68824660
45	05	40	15	40	40	-27.41028160
45	05	40	15	40	60	02.21357300
45	05	40	15	60	40	17.85018060
45	05	40	15	60	60	09.13198970
45	05	50	05	50	30	-00.08111310
45	05	50	05	50	50	26.28213800
45	05	50	05	50	70	-06.49927360
45	05	50	15	30	30	-11.80246600

45	05	50	15	30	50	-02.05088800
45	05	50	15	50	30	-10.95174760
45	05	50	15	50	50	35.96082650
45	05	50	15	50	70	-13.71316560
45	15	30	05	50	30	05.90064210
45	15	30	05	50	50	05.51629620
45	15	30	15	30	10	-01.37131890
45	15	30	15	30	30	-02.60619690
45	15	30	15	30	50	-00.02045790
45	15	30	15	50	30	00.83834290
45	15	30	15	50	50	-06.86136750
45	15	40	05	40	20	-08.84379260
45	15	40	05	40	40	13.70521970
45	15	40	05	40	60	-01.10596490
45	15	40	15	40	20	13.14258900
45	15	40	15	40	40	-29.43900690
45	15	40	15	40	60	02.38825970
45	15	40	15	60	40	-08.75065700
45	15	40	15	60	60	02.89154110
45	15	50	05	50	30	05.47587280
45	15	50	05	50	50	-17.98104850
45	15	50	05	50	70	06.85567450
45	15	50	15	30	30	00.83813010
45	15	50	15	30	50	-06.49556770
45	15	50	15	50	30	-01.72297450
45	15	50	15	50	50	-18.81485760
45	15	50	15	50	70	06.05051570
45	15	60	05	40	40	-06.04602880
45	15	60	05	40	60	-06.66353320
45	15	60	15	40	40	-12.48275630
45	15	60	15	40	60	-00.65118640
45	15	60	15	60	40	-02.28712030
45	15	60	15	60	60	01.17015020
45	15	60	15	60	80	-02.29535850

TABLE XX.

$$A_{\mathfrak{S}}(J' S' l'; S l; n)$$

$$= \sum_L \left\{ \frac{1}{2} A_{\mathfrak{S}}(J; S' l'; S l; L) - A_{\mathfrak{Z}}(J; S' l'; S l; L) \right\} B(l L; n)$$

J	S'	P'	S	P	n	A ₅
05	05	00	05	00	10	-07.99999001
05	05	00	15	20	10	-07.91959563
05	05	00	15	20	30	-03.39411240
05	05	10	05	10	00	09.33333083
05	05	10	05	10	20	-17.33333189
05	05	10	15	10	00	01.88561834
05	05	10	15	10	20	-13.19932437
05	15	10	05	10	00	-00.94281000
05	15	10	05	10	20	06.59966202
05	15	10	15	10	00	-03.99999667
05	15	10	15	10	20	04.00000068
05	15	20	05	00	10	05.65685001
05	15	20	15	20	10	04.79995206
05	15	20	15	20	30	-04.79999710
15	05	10	05	10	00	-08.66666583
15	05	10	05	10	20	00.66666785
15	05	10	15	10	00	15.50340332
15	05	10	15	10	20	-11.92569438
15	05	10	15	30	20	-07.66651787
15	05	10	15	30	40	-03.06660714
15	05	20	05	20	10	07.59997011
15	05	20	05	20	30	-15.59999918
15	05	20	15	00	10	07.99997001
15	05	20	15	20	10	06.40000942
15	05	20	15	20	30	-14.39999748
15	15	00	05	20	10	-02.79999931
15	15	00	05	20	30	-01.19999970
15	15	00	15	00	10	04.00000000
15	15	00	15	20	10	02.80000001
15	15	00	15	20	30	01.20000000
15	15	10	05	10	00	-07.75170083
15	15	10	05	10	20	05.96284686
15	15	10	15	10	00	01.99999666
15	15	10	15	10	20	05.20000034
15	15	10	15	30	20	-04.45714008
15	15	10	15	30	40	06.85714108
15	15	20	05	20	10	-03.20000901
15	15	20	05	20	30	07.19999904
15	15	20	15	00	10	03.99999000
15	15	20	15	20	10	-09.19995245
15	15	20	15	20	30	13.19999753
15	15	30	05	10	00	00.89442666
15	15	30	05	10	20	04.47213536
15	15	30	15	10	00	-13.99999666
15	15	30	15	10	20	16.39999573
15	15	30	15	30	20	03.90857008
15	15	30	15	30	40	-01.82857107
25	05	20	05	20	10	-10.39997952
25	05	20	05	20	30	02.40000252
25	05	20	15	20	10	15.82186081
25	05	20	15	20	30	-11.54568387
25	05	20	15	40	30	-07.56488565
25	05	20	15	40	50	-02.90957138
25	05	30	05	30	20	06.85714151
25	05	30	05	30	40	-14.85714147

J	S'	P'	S	P	n	A ₅
25	05	30	15	10	00	01.46059250
25	05	30	15	10	20	07.30296652
25	05	30	15	30	20	07.66651986
25	05	30	15	30	40	-14.82193382
25	15	10	05	30	20	-03.12984122
25	15	10	05	30	40	-01.25193678
25	15	10	15	10	00	02.66666750
25	15	10	15	10	20	00.53333350
25	15	10	15	30	20	05.31889086
25	15	10	15	30	40	-01.39970786
25	15	20	05	20	10	-07.91091970
25	15	20	05	20	30	05.77284073
25	15	20	15	20	10	06.51424607
25	15	20	15	20	30	00.34285891
25	15	20	15	40	30	-04.97673818
25	15	20	15	40	50	07.77615610
25	15	30	05	30	20	-03.83326095
25	15	30	05	30	40	07.41096591
25	15	30	15	10	00	06.53197083
25	15	30	15	10	20	-02.61278986
25	15	30	15	30	20	-08.91428401
25	15	30	15	30	40	13.71428498
25	15	40	05	20	10	01.04744571
25	15	40	05	20	30	04.18978232
25	15	40	15	20	10	-12.03748985
25	15	40	15	20	30	14.83690591
25	15	40	15	40	30	02.41269280
25	15	40	15	40	50	-01.26984277
35	05	30	05	30	20	-07.37142801
35	05	30	05	30	40	07.14285499
35	05	30	15	30	20	15.83589188
35	05	30	15	30	40	-11.21708782
35	05	30	15	50	40	-05.13761524
35	05	30	15	50	60	-01.17343678
35	05	40	05	40	30	06.44444266
35	05	40	05	40	50	-05.44344160
35	05	40	15	20	10	01.81422920
35	05	40	15	20	30	07.25691683
35	05	40	15	40	30	08.26373104
35	05	40	15	40	50	-04.37483700
35	15	20	05	40	30	-03.27569002
35	15	20	05	40	50	-01.25988100
35	15	20	15	20	10	02.51428591
35	15	20	15	20	30	00.34285710
35	15	20	15	40	30	06.60172068
35	15	20	15	40	50	-02.76846461
35	15	30	05	30	20	-07.91794558
35	15	30	05	30	40	05.60854256
35	15	30	15	30	20	08.28571187
35	15	30	15	30	40	-01.61904286
35	15	30	15	50	40	-12.00178705
35	15	30	15	50	60	03.38742000
35	15	40	05	40	30	-04.13186453
35	15	40	05	40	50	02.18741750
35	15	40	15	20	10	07.66651553

J	S'	'l'	S	l	n	A ₅
35	15	40	15	20	30	-03.83325754
35	15	40	15	40	30	-08.47618492
35	15	40	15	40	50	07.31834783
35	15	50	05	30	20	01.10656608
35	15	50	05	30	40	04.05740993
35	15	50	15	30	20	-10.86089787
35	15	50	15	30	40	13.84231981
35	15	50	15	50	40	02.67346692
35	15	50	15	50	60	-00.30298091
45	05	40	05	40	30	-11.55555330
45	05	40	05	40	50	00.40520722
45	05	40	15	40	30	15.81259372
45	05	40	15	40	50	-03.93226261
45	05	40	15	60	50	-03.81917718
45	05	40	15	60	70	-01.76049880
45	05	50	05	50	40	06.25253188
45	05	50	05	50	60	-00.03495886
45	05	50	15	30	20	01.97948572
45	05	50	15	30	40	07.25811627
45	05	50	15	50	40	06.82042311
45	05	50	15	50	60	00.88486691
45	15	30	05	50	40	-02.29761009
45	15	30	05	50	60	-00.52477691
45	15	30	15	30	20	02.28571458
45	15	30	15	30	40	00.38095143
45	15	30	15	50	40	10.40458677
45	15	30	15	50	60	-01.49967572
45	15	40	05	40	30	-07.90629638
45	15	40	05	40	50	01.96613034
45	15	40	15	40	30	09.21211696
45	15	40	15	40	50	-02.33935689
45	15	40	15	60	50	00.92984720
45	15	40	15	60	70	05.30810073
45	15	50	05	50	40	-03.41021315
45	15	50	05	50	60	-00.44243386
45	15	50	15	30	20	08.08121766
45	15	50	15	30	40	-04.30998461
45	15	50	15	50	40	-10.54910327
45	15	50	15	50	60	01.20026823
45	15	60	05	40	30	01.13707001
45	15	60	05	40	50	01.96477500
45	15	60	15	40	30	-10.11376609
45	15	60	15	40	50	01.04859705
45	15	60	15	60	50	00.56605315
45	15	60	15	60	70	-00.25022715

TABLE XXI.

$$A_{\mathbf{e}} (J; S' l'; S l; n)$$

$$= \sum_L \left\{ -\frac{1}{2} A_{\mathbf{g}} (J; S' l'; S l; n) + A_{\mathbf{2}} (J; S' l'; S l; n) \right\} B(l' L; n)$$

T	S'	ℓ'	S	ℓ	n	A_6
05	05	00	05	00	10	07.99999001
05	05	00	15	20	10	11.31370801
05	05	10	05	10	00	-09.33333083
05	05	10	05	10	20	17.33333189
05	05	10	15	10	00	-01.88561834
05	05	10	15	10	20	13.19932437
05	15	10	05	10	00	00.94281000
05	15	10	05	10	20	-06.59966202
05	15	10	15	10	00	03.99999667
05	15	10	15	10	20	-04.00000068
05	15	20	05	00	10	-03.95979502
05	15	20	05	00	30	-01.69705499
05	15	20	15	20	10	-04.79995206
05	15	20	15	20	30	04.79999710
15	05	10	05	10	00	08.66666583
15	05	10	05	10	20	-00.66666785
15	05	10	15	10	00	-15.50340332
15	05	10	15	10	20	11.92569438
15	05	10	15	30	00	01.78885416
15	05	10	15	30	20	08.94427086
15	05	20	05	20	10	-07.59997011
15	05	20	05	20	30	15.59999918
15	05	20	15	00	10	-05.59999302
15	05	20	15	00	30	-02.39999699
15	05	20	15	20	10	-06.40000942
15	05	20	15	20	30	14.39999748
15	15	00	05	20	10	03.99999900
15	15	00	15	00	10	-04.00000000
15	15	00	15	20	10	-04.00000000
15	15	10	05	10	00	07.75170083
15	15	10	05	10	20	-05.96284686
15	15	10	15	10	00	-01.99999666
15	15	10	15	10	20	-05.20000034
15	15	10	15	30	00	13.99999499
15	15	10	15	30	20	-16.39999606
15	15	20	05	20	10	03.20000901
15	15	20	05	20	30	-07.19999904
15	15	20	15	00	10	-02.79999301
15	15	20	15	00	30	-01.19999700
15	15	20	15	20	10	09.19995245
15	15	20	15	20	30	-13.19999753
15	15	30	05	10	20	-03.83325844
15	15	30	05	10	40	-01.53330358
15	15	30	15	10	20	04.45714208
15	15	30	15	10	40	-06.85714108
15	15	30	15	30	20	-03.90857008
15	15	30	15	30	40	01.82857107
25	05	20	05	20	10	10.39997952
25	05	20	05	20	30	-02.40000252
25	05	20	15	20	10	-15.82186081
25	05	20	15	20	30	11.54568387
25	05	20	15	40	10	02.09489140
25	05	20	15	40	30	08.37956563
25	05	30	05	30	20	-06.85714151

25	05	30	05	30	40	14.85714147
25	05	30	15	10	20	-06.25968473
25	05	30	15	10	40	-02.50387429
25	05	30	15	30	20	-07.66651986
25	05	30	15	30	40	14.82193382
25	15	10	05	30	00	00.73029584
25	15	10	05	30	20	03.65148217
25	15	10	15	10	00	-02.66666750
25	15	10	15	10	20	-00.53333350
25	15	10	15	30	00	-06.53197083
25	15	10	15	30	20	02.61278786
25	15	20	05	20	10	07.91091970
25	15	20	05	20	30	-05.77284073
25	15	20	15	20	10	-06.51424607
25	15	20	15	20	30	-00.34285891
25	15	20	15	40	10	12.03748845
25	15	20	15	40	30	-14.83690651
25	15	30	05	30	20	03.83326095
25	15	30	05	30	40	-07.41096591
25	15	30	15	10	20	-05.31888957
25	15	30	15	10	40	01.39970857
25	15	30	15	30	20	08.91428401
25	15	30	15	30	40	-13.71428498
25	15	40	05	20	30	-03.78244252
25	15	40	05	20	50	-01.45478550
25	15	40	15	20	30	04.97674018
25	15	40	15	20	50	-07.77615610
25	15	40	15	40	30	-02.41269280
25	15	40	15	40	50	01.26984277
35	05	30	05	30	20	07.37142801
35	05	30	05	30	40	-07.14285499
35	05	30	15	30	20	-15.83589188
35	05	30	15	30	40	11.21708782
35	05	30	15	50	20	02.21313279
35	05	30	15	50	40	04.09791921
35	05	40	05	40	30	-06.44444266
35	05	40	05	40	50	05.44344160
35	05	40	15	20	30	-06.55138326
35	05	40	15	20	50	-02.51976277
35	05	40	15	40	30	-08.26373104
35	05	40	15	40	50	04.37483700
35	15	20	05	40	10	00.90711391
35	15	20	05	40	30	03.62845711
35	15	20	15	20	10	-02.51428591
35	15	20	15	20	30	-00.34285710
35	15	20	15	40	10	-07.66651553
35	15	20	15	40	30	03.83325954
35	15	30	05	30	20	07.91794558
35	15	30	05	30	40	-05.60854256
35	15	30	15	30	20	-08.28571187
35	15	30	15	30	40	01.61904286
35	15	30	15	50	20	10.86089595
35	15	30	15	50	40	-02.24652891
35	15	40	05	40	30	04.13186453
35	15	40	05	40	50	-02.18741750

35	15	40	15	20	30	-06.60172190
35	15	40	15	20	50	02.76846383
35	15	40	15	40	30	08.47618492
35	15	40	15	40	50	-07.31834783
35	15	50	05	30	40	-03.75561878
35	15	50	05	30	60	-01.40835723
35	15	50	15	30	40	05.14973113
35	15	50	15	30	60	-08.13115310
35	15	50	15	50	40	-02.67346692
35	15	50	15	50	60	00.30298091
45	05	40	05	40	30	11.55555330
45	05	40	05	40	50	-00.40520722
45	05	40	15	40	30	-15.81259372
45	05	40	15	40	50	03.93226261
45	05	40	15	60	30	00.86685928
45	05	40	15	60	50	04.71281671
45	05	50	05	50	40	-06.25253188
45	05	50	05	50	60	00.03495886
45	05	50	15	30	40	-06.71825574
45	05	50	15	30	60	-02.51934627
45	05	50	15	50	40	-06.82042311
45	05	50	15	50	60	-00.88486691
45	15	30	05	50	20	00.98974221
45	15	30	05	50	40	01.83264477
45	15	30	15	30	20	-02.28571458
45	15	30	15	30	40	-00.38095143
45	15	30	15	50	20	-08.08121894
45	15	30	15	50	40	-00.82369209
45	15	40	05	40	30	07.90629638
45	15	40	05	40	50	-01.96613034
45	15	40	15	40	30	-09.21211696
45	15	40	15	40	50	02.33935689
45	15	40	15	60	30	03.85517735
45	15	40	15	60	50	-10.09312532
45	15	50	05	50	40	03.41021315
45	15	50	05	50	60	00.44243386
45	15	50	15	30	40	-07.37104895
45	15	50	15	30	60	03.59981591
45	15	50	15	50	40	10.54910327
45	15	50	15	50	60	-01.20026823
45	15	60	05	40	50	-02.57672826
45	15	60	05	40	70	-00.52511672
45	15	60	15	40	50	12.23174327
45	15	60	15	40	70	-03.16657421
45	15	60	15	60	50	-00.56605315
45	15	60	15	60	70	00.25022715

TABLE XXII.

$$A_{10} (J; S' l'; S l; n)$$

$$= A_{10}^a (J; S' l'; S l; n) + A_{10}^b (J; S' l'; S l; n) + A_{10}^c (J; S' l'; S l; n)$$

where

$$A_{10}^{a+b} (J; S' l'; S l; n) = - \sum_{LS''} A_0^- (J; S' l'; S'' L) A_5 (J; S l; S'' L; n)$$

$$A_{10}^c (J; S' l'; S l; n) = \frac{1}{4} \sum_L A_{11}^b (J; S' l'; S l; L) B(l L; n)$$

05	05	00	05	00	10	-105.6000025
05	05	00	05	00	30	009.5999984
05	05	00	15	20	10	000.0001380
05	05	00	15	20	30	-000.0000091
05	05	10	05	10	00	015.9999987
05	05	10	05	10	20	-112.0000051
05	05	10	15	10	00	033.9411160
05	05	10	15	10	20	-033.9411264
05	15	10	05	10	00	-067.8822422
05	15	10	05	10	20	067.8822486
05	15	10	15	10	00	-031.9999906
05	15	10	15	10	20	080.0000052
05	15	20	05	00	10	006.7881938
05	15	20	05	00	30	-006.7882248
05	15	20	15	20	10	-028.8000834
05	15	20	15	20	30	076.7999993
15	05	10	05	10	00	-060.8000025
15	05	10	05	10	20	-043.4285697
15	05	10	05	10	40	008.2285698
15	05	10	15	10	00	016.0996855
15	05	10	15	10	20	002.2999482
15	05	10	15	10	40	-018.3996391
15	05	10	15	30	00	-012.5219750
15	05	10	15	30	20	016.4472360
15	05	10	15	30	40	-007.3598588
15	05	20	05	20	10	009.5999601
15	05	20	05	20	30	-105.6000041
15	05	20	15	00	10	002.3999979
15	05	20	15	00	30	-002.4000000
15	05	20	15	20	10	045.5998864
15	05	20	15	20	30	-045.5999915
15	15	00	05	20	10	021.5999228
15	15	00	05	20	30	-021.6000023
15	15	00	15	00	10	052.7999999
15	15	00	15	00	30	-004.7999994
15	15	00	15	20	10	021.5998884
15	15	00	15	20	30	-021.5999960
15	15	10	05	10	00	-061.1788147
15	15	10	05	10	20	057.4988851
15	15	10	05	10	40	003.6799285
15	15	10	15	10	00	001.6000079
15	15	10	15	10	20	054.6285597
15	15	10	15	10	40	-008.2285692
15	15	10	15	30	00	023.1999939
15	15	10	15	30	20	-021.4445685
15	15	10	15	30	40	-003.2914293
15	15	20	05	20	10	-069.5999197
15	15	20	05	20	30	069.5999963
15	15	20	15	00	10	-002.3999994
15	15	20	15	00	30	002.3999994
15	15	20	15	20	10	-004.7999640
15	15	20	15	20	30	052.7999940
15	15	30	05	10	00	018.9618527
15	15	30	05	10	20	-014.0552881
15	15	30	05	10	40	-004.9065711

15	15	30	15	10	00	015.1999976
15	15	30	15	10	20	-026.1714235
15	15	30	15	10	40	010.9714250
15	15	30	15	30	00	014.3999975
15	15	30	15	30	20	-041.8834211
15	15	30	15	30	40	077.5314220
25	05	20	05	20	10	-072.6857210
25	05	20	05	20	30	-030.9333298
25	05	20	05	20	50	007.6190460
25	05	20	15	20	10	022.3582663
25	05	20	15	20	30	-001.9955533
25	05	20	15	20	50	-020.3627558
25	05	20	15	40	10	-012.8686159
25	05	20	15	40	30	021.1816940
25	05	20	15	40	50	-008.3130577
25	05	30	05	30	00	003.1999977
25	05	30	05	30	20	002.2857099
25	05	30	05	30	40	-101.4857180
25	05	30	15	10	00	011.6847471
25	05	30	15	10	20	-014.1886221
25	05	30	15	10	40	002.5038732
25	05	30	15	30	00	014.3108308
25	05	30	15	30	20	028.6216647
25	05	30	15	30	40	-042.9325012
25	15	10	05	30	00	000.5842368
25	15	10	05	30	20	022.9521812
25	15	10	05	30	40	-023.5364221
25	15	10	15	10	00	044.7999972
25	15	10	15	10	20	003.2000047
25	15	10	15	30	00	002.6127876
25	15	10	15	30	20	016.9831240
25	15	10	15	30	40	-019.5959190
25	15	20	05	20	10	-064.5091958
25	15	20	05	20	30	060.4366703
25	15	20	05	20	50	004.0725515
25	15	20	15	20	10	006.4653739
25	15	20	15	20	30	052.4190330
25	15	20	15	20	50	-010.8843510
25	15	20	15	40	10	018.3161800
25	15	20	15	40	30	-013.8726537
25	15	20	15	40	50	-004.4435165
25	15	30	05	30	00	-002.8621649
25	15	30	05	30	20	-066.4431567
25	15	30	05	30	40	069.3053239
25	15	30	15	10	00	-010.4511564
25	15	30	15	10	20	001.3810423
25	15	30	15	10	40	002.7994154
25	15	30	15	30	00	-012.7999958
25	15	30	15	30	20	019.6571448
25	15	30	15	30	40	041.1428547
25	15	40	05	20	10	021.8466792
25	15	40	05	20	30	-017.6902062
25	15	40	05	20	50	-004.1565304
25	15	40	15	20	10	007.1185388
25	15	40	15	20	30	-018.2273057

25	15	40	15	20	50	011.1087942
25	15	40	15	40	10	014.1061190
25	15	40	15	40	30	-041.7523789
25	15	40	15	40	50	075.6462490
35	05	30	05	30	20	-077.7142874
35	05	30	05	30	40	-031.6871077
35	05	30	05	30	60	003.0298006
35	05	30	15	30	20	025.4034088
35	05	30	15	30	40	013.2830813
35	05	30	15	30	60	-008.7462805
35	05	30	15	50	20	-012.5410831
35	05	30	15	50	40	020.3477325
35	05	30	15	50	60	-010.4845657
35	05	40	05	40	10	004.1142850
35	05	40	05	40	30	-001.0666709
35	05	40	05	40	50	-117.0496168
35	05	40	15	20	10	012.9587803
35	05	40	15	20	30	-017.6383376
35	05	40	15	20	50	004.6795589
35	05	40	15	40	10	017.3860227
35	05	40	15	40	30	023.6643177
35	05	40	15	40	50	-030.4002173
35	15	20	05	40	10	001.0367022
35	15	20	05	40	30	023.0810273
35	15	20	05	40	50	-024.1177264
35	15	20	15	20	10	054.4653011
35	15	20	15	20	30	-008.9142788
35	15	20	15	20	50	002.4489797
35	15	20	15	40	10	004.3808654
35	15	20	15	40	30	013.2034445
35	15	20	15	40	50	-017.5843175
35	15	30	05	30	20	-061.2981007
35	15	30	05	30	40	062.5344573
35	15	30	05	30	60	001.7492561
35	15	30	15	30	20	009.5238091
35	15	30	15	30	40	060.8118237
35	15	30	15	30	60	-005.0496673
35	15	30	15	50	20	015.7589489
35	15	30	15	50	40	-011.2517755
35	15	30	15	50	60	-006.0532678
35	15	40	05	40	10	-003.4772053
35	15	40	05	40	30	-065.5839670
35	15	40	05	40	50	047.7609150
35	15	40	15	20	10	-010.9521682
35	15	40	15	20	30	007.2406038
35	15	40	15	20	50	003.7115669
35	15	40	15	40	10	-014.6938705
35	15	40	15	40	30	027.0476042
35	15	40	15	40	50	048.2476569
35	15	50	05	30	20	013.1312576
35	15	50	05	30	40	-022.2801539
35	15	50	05	30	60	-000.6518015
35	15	50	15	30	20	002.9814285
35	15	50	15	30	40	-013.6232140
35	15	50	15	30	60	001.8815888

35	15	50	15	50	20	013.3333284
35	15	50	15	50	40	-041.2624463
35	15	50	15	50	60	-009.1193423
45	05	40	05	40	30	-080.4848498
45	05	40	05	40	50	-029.4623961
45	05	40	05	40	70	001.7168687
45	05	40	15	40	30	027.1908359
45	05	40	15	40	50	-019.8087690
45	05	40	15	40	70	-005.1765511
45	05	40	15	60	30	-012.1976590
45	05	40	15	60	50	011.7334731
45	05	40	15	60	70	-010.7768087
45	05	50	05	50	20	004.5714263
45	05	50	05	50	40	006.3037743
45	05	50	05	50	60	-010.0005760
45	05	50	15	30	20	013.1965765
45	05	50	15	30	40	-014.1164302
45	05	50	15	30	60	001.0202311
45	05	50	15	50	20	018.6627721
45	05	50	15	50	40	015.0375565
45	05	50	15	50	60	015.9016501
45	15	30	05	50	20	001.3196570
45	15	30	05	50	40	026.5724098
45	15	30	05	50	60	-021.9040274
45	15	30	15	30	20	058.6666610
45	15	30	15	30	40	-017.8140714
45	15	30	15	30	60	001.6158952
45	15	30	15	50	20	005.3874779
45	15	30	15	50	40	017.3708602
45	15	30	15	50	60	-011.5131539
45	15	40	05	40	30	-066.2228496
45	15	40	05	40	50	025.8665955
45	15	40	05	40	70	001.0353109
45	15	40	15	40	30	011.5482180
45	15	40	15	40	50	035.9936922
45	15	40	15	40	70	-003.1215783
45	15	40	15	60	30	014.2434229
45	15	40	15	60	50	007.3479563
45	15	40	15	60	70	-006.4986624
45	15	50	05	50	20	-003.7325539
45	15	50	05	50	40	-055.4628313
45	15	50	05	50	60	-033.6583616
45	15	50	15	30	20	-010.7749615
45	15	50	15	30	40	004.4200314
45	15	50	15	30	60	000.7735139
45	15	50	15	50	20	-015.2380894
45	15	50	15	50	40	023.5585959
45	15	50	15	50	60	011.4921086
45	15	60	05	40	30	020.1632576
45	15	60	05	40	50	-019.3817097
45	15	60	05	40	70	-001.4317006
45	15	60	15	40	30	-003.1925240
45	15	60	15	40	50	005.6999367
45	15	60	15	40	70	004.3167375
45	15	60	15	60	30	004.8387951

45	15	60	15	60	50
45	15	60	15	60	70

-012.4780011
-008.5055921

$$A_{11}(J; S' l'; S l; n)$$

$$= A_{11}^{a+b+c+d+e+f},$$

where

$$A_{11}^a(J; S' l'; S l; n) = \sum_{LS''} A_1(J; S' l'; S'' n; L) A_0^-(J; S'' n; S l)$$

$$A_{11}^b(J; S' l'; S l; n) = 80 (-1)^{l'+S'-J} (l/2/n) [(2l+1)(2n+1)]^{1/2}$$

$$\times \sum_L [5(2L+1)]^{1/2} (2/2/L) (Ln/l') \sum_{S'''} g(S''' S)$$

$$\times \sum_{S''} g(S' S'') g_1(S' S''') W(S'' 2 S 2; S''' L) \begin{pmatrix} J & l' & S' \\ S & L & S'' \\ l & n & 2 \end{pmatrix}$$

$$A_{11}^c(J; S' l'; S l; n) = \sum_{LS''} A_0^-(J; S' l'; S'' L) A_3(J; S l; S'' L; n)$$

$$A_{11}^d(J; S' l'; S l; n) = \sum_{LS''} A_0^-(J; S' l'; S'' L) A_4(J; S l; S'' L; n)$$

$$A_{11}^e(J; S' l'; S l; n) = 40 (-1)^{l'+S'+J} \sum_L (l/1/L) [(2L+1)(2l+1)]^{1/2}$$

$$\times \sum_{L'} [(2L'+1)5]^{1/2} (L/2/L') B(LL'; n) \sum_{L_1} [(2L_1+1)30]^{1/2}$$

$$\times (L' 2/L_1)(L_1 1/l') \times \sum_{S'''} g(S''' S) \sum_{S''} g(S' S'') g_1(S'' S''') \sum_f (2f+1)$$

$$\times W(L 2 L_1 2; L_1 f) W(S'' 2 S 2; S''' f) \begin{Bmatrix} L_1 & f & S'' & 2 \\ L & S & S' & 1 \\ 1 & l & J & l' \end{Bmatrix}$$

TABLE XXIII. (contd.)

$$A_{1\ 1}^f(J; S' \ell'; S \ell; n) = -\frac{1}{2} A_{1\ 1}^e(J; S \ell; S' \ell'; n).$$

05	05	00	05	00	00	223.9990462
05	05	00	05	00	20	-176.0022451
05	05	00	15	20	00	171.9686852
05	05	00	15	20	20	-226.2740061
05	05	00	15	20	40	054.3057720
05	05	10	05	10	10	259.2003682
05	05	10	05	10	30	-211.2009591
05	05	10	15	10	10	115.3982655
05	05	10	15	10	30	-115.3956670
05	15	10	05	10	10	-149.3388622
05	15	10	05	10	30	149.3366561
05	15	10	15	10	10	-153.5978411
05	15	10	15	10	30	129.5990848
05	15	20	05	00	00	-049.7798945
05	15	20	05	00	20	080.8137988
05	15	20	05	00	40	-031.0314668
05	15	20	15	20	00	-035.2000824
05	15	20	15	20	20	-103.9996612
05	15	20	15	20	40	115.1995498
15	05	10	05	10	10	100.7988642
15	05	10	05	10	30	-052.8019228
15	05	10	15	10	10	124.5043369
15	05	10	15	10	30	-124.5043173
15	05	10	15	30	10	109.4776324
15	05	10	15	30	30	-157.1774189
15	05	10	15	30	50	047.7054646
15	05	20	05	20	00	025.6001246
15	05	20	05	20	20	211.4267796
15	05	20	05	20	40	-181.0282820
15	05	20	15	00	00	-065.5995732
15	05	20	15	00	20	076.5716382
15	05	20	15	00	40	-010.9714092
15	05	20	15	20	00	-112.5334624
15	05	20	15	20	20	294.8560860
15	05	20	15	20	40	-189.2557358
15	15	00	05	20	00	153.6006076
15	15	00	05	20	20	-160.5714918
15	15	00	05	20	40	010.9725340
15	15	00	15	00	00	-111.9993092
15	15	00	15	00	20	088.0016056
15	15	00	15	20	00	025.0673356
15	15	00	15	20	20	-000.5723738
15	15	00	15	20	40	-027.4276276
15	15	10	05	10	10	-149.1906762
15	15	10	05	10	30	149.1891476
15	15	10	15	10	10	-094.5589005
15	15	10	15	10	30	070.5605116
15	15	10	15	30	10	023.4515086
15	15	10	15	30	30	-008.2119683
15	15	10	15	30	50	-015.2366727
15	15	20	05	20	00	083.1998826
15	15	20	05	20	20	-293.1429642
15	15	20	05	20	40	213.9415926
15	15	20	15	00	00	-030.4001576
15	15	20	15	00	20	019.4279618

15	15	20	15	00	40	010.9713652
15	15	20	15	20	00	-012.8001020
15	15	20	15	20	20	-105.7123752
15	15	20	15	20	40	090.5141250
15	15	30	05	10	10	001.3785394
15	15	30	05	10	30	025.8793307
15	15	30	05	10	50	-027.2586204
15	15	30	15	10	10	-026.9480133
15	15	30	15	10	30	020.8541283
15	15	30	15	10	50	006.0951768
15	15	30	15	30	30	-094.2936371
15	15	30	15	30	50	103.6176384
25	05	20	05	20	00	-070.3998585
25	05	20	05	20	20	148.5705762
25	05	20	05	20	40	-030.1732929
25	05	20	15	20	00	163.3501862
25	05	20	15	20	20	-081.2492114
25	05	20	15	20	40	-082.1000469
25	05	20	15	40	00	005.5863176
25	05	20	15	40	20	076.8131637
25	05	20	15	40	40	-126.8353478
25	05	20	15	40	60	044.4388110
25	05	30	05	30	10	024.6859038
25	05	30	05	30	30	200.5322774
25	05	30	05	30	50	-167.6189627
25	05	30	15	10	10	-046.3220079
25	05	30	15	10	30	059.2044531
25	05	30	15	10	50	-011.1283068
25	05	30	15	30	10	-091.9972857
25	05	30	15	30	30	289.5581670
25	05	30	15	30	50	-206.1414171
25	15	10	05	30	10	135.7111166
25	15	10	05	30	30	-143.3303167
25	15	10	05	30	50	011.1309617
25	15	10	15	10	10	-038.7187595
25	15	10	15	10	30	015.3642599
25	15	10	15	30	10	035.1622106
25	15	10	15	30	30	-013.4095935
25	15	10	15	30	50	-024.8812921
25	15	20	05	20	00	-172.7577092
25	15	20	05	20	20	063.5317888
25	15	20	05	20	40	109.2238580
25	15	20	15	20	00	022.6279370
25	15	20	15	20	20	-097.9584353
25	15	20	15	20	40	051.3309311
25	15	20	15	40	00	002.9859696
25	15	20	15	40	20	026.2613267
25	15	20	15	40	40	-012.2806180
25	15	20	15	40	60	-013.5726308
25	15	30	05	30	10	058.8794225
25	15	30	05	30	30	-283.5933412
25	15	30	05	30	50	228.2889000
25	15	30	15	10	10	-043.2223384
25	15	30	15	10	30	033.2689478
25	15	30	15	10	50	009.9534420

25	15	30	15	30	10	-004.9379852
25	15	30	15	30	30	-101.9188336
25	15	30	15	30	50	078.8579739
25	15	40	05	20	00	-005.5869483
25	15	40	05	20	20	029.4258865
25	15	40	05	20	40	001.5513143
25	15	40	05	20	60	-025.3925222
25	15	40	15	20	00	-007.4647216
25	15	40	15	20	20	-025.0582754
25	15	40	15	20	40	025.7393964
25	15	40	15	20	60	006.7863154
25	15	40	15	40	20	-031.1823597
25	15	40	15	40	40	-090.4786372
25	15	40	15	40	60	097.6614012
35	05	30	05	30	10	-090.5139250
35	05	30	05	30	30	159.4628460
35	05	30	05	30	50	-000.2153228
35	05	30	15	30	10	192.4063339
35	05	30	15	30	30	-119.7825456
35	05	30	15	30	50	-086.8755045
35	05	30	15	50	10	007.0819150
35	05	30	15	50	30	060.6555973
35	05	30	15	50	50	-116.8964938
35	05	30	15	50	70	042.4683252
35	05	40	05	40	20	022.8576476
35	05	40	05	40	40	195.4271495
35	05	40	05	40	60	-141.9978444
35	05	40	15	20	00	-016.9329505
35	05	40	15	20	20	-012.5280592
35	05	40	15	20	40	043.0457492
35	05	40	15	20	60	-010.9952246
35	05	40	15	40	20	-076.3045203
35	05	40	15	40	40	280.2849676
35	05	40	15	40	60	-223.3180299
35	15	20	05	40	00	009.6757814
35	15	20	05	40	20	112.3105008
35	15	20	05	40	40	-129.7378066
35	15	20	05	40	60	010.9972704
35	15	20	15	20	00	040.2285561
35	15	20	15	20	20	-063.9988166
35	15	20	15	20	40	000.5894110
35	15	20	15	40	00	004.0887838
35	15	20	15	40	20	033.2230914
35	15	20	15	40	40	-016.8130313
35	15	20	15	40	60	-023.2275008
35	15	30	05	30	10	-204.2831841
35	15	30	05	30	30	116.8569222
35	15	30	05	30	50	099.4000575
35	15	30	15	30	10	031.5415946
35	15	30	15	50	10	004.0887154
35	15	30	15	50	30	027.9719207
35	15	30	15	50	50	-014.9354796
35	15	30	15	50	70	-017.5122018
35	15	40	05	40	20	042.4994569
35	15	40	05	40	40	-271.7230407

35	15	40	05	40	60	254.8674770
35	15	40	15	20	00	-010.2216680
35	15	40	15	20	20	-033.2208863
35	15	40	15	20	40	035.2450633
35	15	40	15	20	60	009.2926538
35	15	40	15	40	20	000.0006810
35	15	40	15	40	40	-100.6069692
35	15	40	15	40	60	060.3335721
35	15	50	05	30	10	-007.0826717
35	15	50	05	30	30	054.6958727
35	15	50	05	30	50	-012.7510623
35	15	50	05	30	70	-024.2669852
35	15	50	15	30	10	-010.2210155
35	15	50	15	30	30	-037.2876109
35	15	50	15	30	50	040.4441134
35	15	50	15	30	70	007.0051000
35	15	50	15	50	30	-030.6022868
35	15	50	15	50	50	-086.3176454
35	15	50	15	50	70	092.1590009
45	05	40	05	40	20	-100.5710738
45	05	40	05	40	40	146.9680744
45	05	40	05	40	60	-013.1557566
45	05	40	15	40	20	203.3043007
45	05	40	15	40	40	-126.6271516
45	05	40	15	40	60	-056.7779400
45	05	40	15	60	20	007.7969920
45	05	40	15	60	40	056.9605997
45	05	40	15	60	60	-095.2780647
45	05	40	15	60	80	044.7833494
45	05	50	05	50	30	027.6173398
45	05	50	05	50	50	155.9659965
45	05	50	05	50	70	-131.5115717
45	05	50	15	30	10	-022.1700324
45	05	50	15	30	30	001.4167924
45	05	50	15	30	50	041.0682353
45	05	50	15	30	70	-010.8524676
45	05	50	15	50	30	-060.6858014
45	05	50	15	50	50	292.5903142
45	05	50	15	50	70	-228.0157055
45	15	30	05	50	10	012.6684788
45	15	30	05	50	30	100.6631172
45	15	30	05	50	50	-134.8763460
45	15	30	05	50	70	010.8565716
45	15	30	15	30	10	052.1142797
45	15	30	15	30	30	-069.5082192
45	15	30	15	30	50	-011.2433340
45	15	30	15	50	10	005.1718354
45	15	30	15	50	30	032.8689153
45	15	40	05	40	20	-216.3986024
45	15	40	05	40	40	131.6703910
45	15	40	15	40	20	036.4665616
45	15	40	15	40	40	-079.8127875
45	15	40	15	40	60	021.3159335
45	15	40	15	60	20	004.7017858
45	15	40	15	60	40	029.0850371

45	15	40	15	60	60	-023.4313261
45	15	40	15	60	80	-015.5268998
45	15	50	05	50	30	031.7754823
45	15	50	05	50	50	-306.3917370
45	15	50	05	50	70	260.3536768
45	15	50	15	30	10	-012.9294544
45	15	50	15	30	30	-037.1105892
45	15	50	15	30	50	038.6901292
45	15	50	15	30	70	008.8609426
45	15	50	15	50	30	002.1432492
45	15	50	15	50	50	-078.2264468
45	15	50	15	50	70	052.5560798
45	15	60	05	40	20	-012.6223969
45	15	60	05	40	40	044.7754152
45	15	60	05	40	60	-020.7704854
45	15	60	05	40	80	-023.5109112
45	15	60	15	40	20	-010.2993213
45	15	60	15	40	40	-028.1182839
45	15	60	15	40	60	029.3930883
45	15	60	15	40	80	007.0885248
45	15	60	15	60	40	-010.4682133
45	15	60	15	60	60	-098.9154223
45	15	60	15	60	80	090.4239067

TABLE XXIV.

$$A_{12}(J; S'l'; Sl; n)$$

$$= A_{12}^{a+b+c+d+e+f+g},$$

where

$$\begin{aligned} A_{12}^a(J; S'l'; Sl; n) &= 300 (-1)^{l'+S'+J} [5(2l+1)]^{1/2} \sum_L (l1/L) \\ &\times \sum_{L'} [(2L+1)(2L'+1)]^{1/2} (L1/L') \sum_{L_2} (L_2 1/l') \sum_{L_1} [(2L_1+1)(2L_2+1)]^{1/2} \\ &\times (L'2/L_1 1)(L_1 1/L_2) B(L'L_1; n) \sum_{S'''} g(S'''S) \sum_{S''} g_1(S''S''') g(S'S'') \\ &\times \sum_f (-1)^f (2f+1) \begin{pmatrix} f & 2 & 2 \\ L_2 & 1 & L_1 \\ L & 1 & L' \end{pmatrix} W(S''2S2; S'''f) \left\{ \begin{matrix} l & 1 & 2 & S'' \\ f & L & 1 & S' \\ & L_2 & l' & J \end{matrix} \right\} S \end{aligned}$$

$$A_{12}^{b+f}(J; S'l'; Sl; n) = \sum_{LS''} \frac{1}{2} A_O^-(J; S'l'; S''L) A_5(J; Sl; S''L; n)$$

$$A_{12}^c(J; S'l'; Sl; n) = 40 [5(2l+1)]^{1/2} \sum_L (-1)^{L+S'+J} (l2/L)$$

$$\times \sum_{L'} [(2L+1)(2L'+1)]^{1/2} (L2/L')(L'2/l') B(LL'; n)$$

$$\times \sum_{S'''} g(S'''S) \sum_{S''} g(S'S'') g_1(S''S''') \left\{ \begin{matrix} l' & S' & S'' & S''' \\ S & J & 2 & 2 \\ & l & L & L' \end{matrix} \right\} 2$$

TABLE XXIV. (contd.)

$$A_{12}^d(J; S'l'; Sl; n) = \sum_{LL'S'''} \frac{1}{4} A_3(J; S'l'; S'''L; L') A_0^-(J; S'''L; Sl)$$

$$\times B(LL'; n)$$

$$A_{12}^e(J; S'l'; Sl; n) = 4[5(2l+1)]^{1/2} \sum_L (l+2/L) \sum_{L'} [(2L+1)(2L'+1)]^{1/2}$$

$$\times (L'+2/l')(L+2/L') B(LL'; n) \sum_{S'''} g(S'''S)$$

$$\times \sum_{S''} g(S'S'') g_1(S''S''') \left\{ \begin{matrix} 2 & S''' & S'' & S' \\ S & 2 & 2 & l' \\ J & l & L & L' \end{matrix} \right\}$$

$$A_{12}^g(J; S'l'; Sl; n) = + A_{12}^e(J; Sl; S'l'; n)$$

05	05	00	05	00	10	235.1999752
05	05	00	05	00	30	-027.1999928
05	05	00	15	20	10	-000.0000055
05	05	00	15	20	30	000.0000447
05	05	10	05	10	00	-046.3999953
05	05	10	05	10	20	261.7141887
05	05	10	05	10	40	-007.3142608
05	05	10	15	10	00	-057.6999298
05	05	10	15	10	20	104.2478730
05	05	10	15	10	40	-046.5478155
05	15	10	05	10	00	-057.6998379
05	15	10	05	10	20	104.2476364
05	15	10	05	10	40	-046.5478035
05	15	10	15	10	00	-058.4000238
05	15	10	15	10	20	016.5715338
05	15	10	15	10	40	-062.1714390
05	15	20	05	00	10	-000.0000171
05	15	20	05	00	30	000.0000507
05	15	20	15	20	10	-117.5998652
05	15	20	15	20	30	120.2666821
05	15	20	15	20	50	-106.6666374
15	05	10	05	10	00	140.8000331
15	05	10	05	10	20	086.8570399
15	05	10	05	10	40	-019.6571086
15	05	10	15	10	00	-047.7624072
15	05	10	15	10	20	071.6818792
15	05	10	15	10	40	-023.9195303
15	05	10	15	30	00	014.4897283
15	05	10	15	30	20	-029.9454525
15	05	10	15	30	40	017.1733605
15	05	20	05	20	10	-030.1712949
15	05	20	05	20	30	244.2663875
15	05	20	05	20	50	-006.0951438
15	05	20	15	00	10	-032.3999960
15	05	20	15	00	30	032.3999299
15	05	20	15	20	10	-066.3428521
15	05	20	15	20	30	121.1998335
15	05	20	15	20	50	-054.8571097
15	15	00	05	20	10	-032.3999780
15	15	00	05	20	30	032.3999299
15	15	00	15	00	10	-117.5999747
15	15	00	15	00	30	013.5999983
15	15	00	15	20	10	-032.3999660
15	15	00	15	20	30	032.3998844
15	15	10	05	10	00	-047.7624519
15	15	10	05	10	20	071.6819791
15	15	10	05	10	40	-023.9195419
15	15	10	15	10	00	-008.0000416
15	15	10	15	30	00	054.0000297
15	15	10	15	30	20	-090.5348647
15	15	10	15	30	40	037.3026312
15	15	20	05	20	10	-066.3427256
15	15	20	05	20	30	121.1997433
15	15	20	05	20	50	-054.8570737
15	15	20	15	00	10	-032.3999745

15	15	20	15	00	30	032.3998846
15	15	20	15	20	10	015.0856992
15	15	20	15	20	30	-122.1329089
15	15	20	15	20	50	003.0475782
15	15	30	05	10	00	014.4897008
15	15	30	05	10	20	-029.9453113
15	15	30	05	10	40	017.1731568
15	15	30	15	10	00	053.9999951
15	15	30	15	10	20	-090.5349489
15	15	30	15	10	40	037.3025207
15	15	30	15	30	00	003.9999676
15	15	30	15	30	20	-102.6113354
15	15	30	15	30	40	089.5334609
15	15	30	15	30	60	-096.9697384
25	05	20	05	20	10	165.2570244
25	05	20	05	20	30	060.2661104
25	05	20	05	20	50	-017.5237269
25	05	20	15	20	10	-012.6453294
25	05	20	15	20	30	026.0843526
25	05	20	15	20	50	-013.4394128
25	05	20	15	40	10	012.1205058
25	05	20	15	40	30	-034.5653608
25	05	20	15	40	50	022.4455068
25	05	30	05	30	00	-006.6285303
25	05	30	05	30	20	-014.0953027
25	05	30	05	30	40	321.5790429
25	05	30	05	30	60	054.9076524
25	05	30	15	10	00	-031.5488257
25	05	30	15	10	20	011.2674984
25	05	30	15	10	40	020.2815163
25	05	30	15	30	00	-014.1063898
25	05	30	15	30	20	-039.8660709
25	05	30	15	30	40	134.1330363
25	05	30	15	30	60	-038.8605777
25	15	10	05	30	00	-031.5487651
25	15	10	05	30	20	011.2671965
25	15	10	05	30	40	020.2811504
25	15	10	15	10	00	-053.6000252
25	15	10	15	10	20	-070.5142476
25	15	10	15	30	00	-070.5453025
25	15	10	15	30	20	078.1035811
25	15	10	15	30	40	-016.5725393
25	15	20	05	20	10	-012.6451761
25	15	20	05	20	30	026.0848664
25	15	20	05	20	50	-013.4394487
25	15	20	15	20	10	002.5959749
25	15	20	15	20	30	-145.5611569
25	15	20	15	20	50	038.9659376
25	15	20	15	40	10	020.5157013
25	15	20	15	40	30	-044.5109693
25	15	20	15	40	50	023.9945039
25	15	30	05	30	00	-014.1063652
25	15	30	05	30	20	-039.8655897
25	15	30	05	30	40	134.1337072
25	15	30	05	30	60	-038.8605177

25	15	30	15	10	00	-070.5452354
25	15	30	15	10	20	078.1037143
25	15	30	15	10	40	-007.5585873
25	15	30	15	30	00	-029.2571794
25	15	30	15	30	20	080.4194092
25	15	30	15	30	40	-237.4380404
25	15	30	15	30	60	-010.0748364
25	15	40	05	20	10	012.1203894
25	15	40	05	20	30	-034.5653532
25	15	40	05	20	50	022.4455638
25	15	40	15	20	10	020.5156799
25	15	40	15	20	30	-044.5112756
25	15	40	15	20	50	023.9944714
25	15	40	15	40	10	-000.3483553
25	15	40	15	40	30	-082.3647337
25	15	40	15	40	50	-091.2781020
25	15	40	15	40	70	-091.3753998
35	05	30	05	30	00	-001.8285366
35	05	30	05	30	20	185.9043141
35	05	30	05	30	40	079.0792536
35	05	30	05	30	60	000.5001995
35	05	30	15	30	00	028.5046022
35	05	30	15	30	20	-051.4996599
35	05	30	15	30	40	029.0997973
35	05	30	15	30	60	-005.6605565
35	05	30	15	50	20	004.5000903
35	05	30	15	50	40	-016.1998373
35	05	30	15	50	60	035.8003526
35	05	40	05	40	10	-008.6094669
35	05	40	05	40	30	-006.5939146
35	05	40	05	40	50	361.0494967
35	05	40	15	20	10	-034.5886591
35	05	40	15	20	30	020.4099335
35	05	40	15	20	50	014.5779077
35	05	40	15	40	10	-014.4883856
35	05	40	15	40	30	023.6848035
35	05	40	15	40	50	-008.0884488
35	05	40	15	40	70	-008.5542774
35	15	20	05	40	10	-034.9886261
35	15	20	05	40	30	020.4095852
35	15	20	05	40	50	014.5781988
35	15	20	15	20	10	-088.9468601
35	15	20	15	20	30	-027.1618682
35	15	20	15	20	50	012.1087587
35	15	20	15	40	10	-065.0558407
35	15	20	15	40	30	083.9475263
35	15	20	15	40	50	-018.8932659
35	15	30	05	30	00	028.5045782
35	15	30	05	30	20	-042.2617709
35	15	30	05	30	40	018.3628966
35	15	30	05	30	60	-007.4100526
35	15	30	15	30	00	066.7428034
35	15	30	15	30	20	-104.3805710
35	15	30	15	30	40	-143.2729535
35	15	30	15	30	60	012.1007081

35	15	30	15	50	20	005.7499103
35	15	30	15	50	40	-032.8540929
35	15	30	15	50	60	008.6788884
35	15	40	05	40	10	-014.4882120
35	15	40	05	40	30	-032.4223462
35	15	40	05	40	50	046.2787655
35	15	40	05	40	70	-041.3456976
35	15	40	15	20	10	-065.0557838
35	15	40	15	20	30	083.9474923
35	15	40	15	20	50	-018.8927866
35	15	40	15	40	10	-021.6054954
35	15	40	15	40	30	080.7619866
35	15	40	15	40	50	-231.6503541
35	15	40	15	40	70	006.4665374
35	15	50	05	30	20	014.8279660
35	15	50	05	30	40	-014.7902069
35	15	50	05	30	60	036.9079284
35	15	50	15	30	20	005.7499076
35	15	50	15	30	40	-035.1799981
35	15	50	15	30	60	008.9418729
35	15	50	15	50	20	-002.1991862
35	15	50	15	50	40	-064.0547448
35	15	50	15	50	60	-070.5568407
45	05	40	05	40	10	-002.4380404
45	05	40	05	40	30	192.9365959
45	05	40	05	40	50	169.9767119
45	05	40	05	40	70	-001.2599307
45	05	40	15	40	10	036.3881418
45	05	40	15	40	30	018.8874058
45	05	40	15	40	50	-012.0344135
45	05	40	15	40	70	-001.7438628
45	05	40	15	60	30	007.4737352
45	05	40	15	60	50	-017.7998906
45	05	40	15	60	70	034.7132032
45	05	50	05	50	20	-009.6274515
45	05	50	05	50	40	-013.9166250
45	05	50	05	50	60	345.0679942
45	05	50	05	50	80	035.0882038
45	05	50	15	30	20	-035.6307519
45	05	50	15	30	40	040.3308445
45	05	50	15	30	60	026.5842591
45	05	50	15	50	20	-013.7425707
45	05	50	15	50	40	-019.2789985
45	05	50	15	50	60	058.7541998
45	05	50	15	50	80	-042.9739676
45	15	30	05	50	20	-035.6307786
45	15	30	05	50	40	040.7908383
45	15	30	05	50	60	026.0747775
45	15	30	15	30	00	-032.0000434
45	15	30	15	30	20	-058.0952360
45	15	30	15	30	40	-026.7548532
45	15	30	15	30	60	004.2312907
45	15	30	15	50	20	-058.1849630
45	15	30	15	50	40	094.7852914
45	15	30	15	50	60	-013.4866838

45	15	40	05	40	10	036.3879678
45	15	40	05	40	30	-049.2939018
45	15	40	05	40	50	-009.6024323
45	15	40	05	40	70	-006.8757116
45	15	40	15	40	10	078.0189926
45	15	40	15	40	30	-140.0737222
45	15	40	15	40	50	-137.2953598
45	15	40	15	40	70	013.6136100
45	15	40	15	60	30	-001.5059469
45	15	40	15	60	50	000.5287035
45	15	40	15	60	70	004.8452586
45	15	50	05	50	20	-013.7424201
45	15	50	05	50	40	-026.8996219
45	15	50	05	50	60	058.7541158
45	15	50	05	50	80	-042.9736646
45	15	50	15	30	20	-058.1846716
45	15	50	15	30	40	093.5033554
45	15	50	15	30	60	-013.5275313
45	15	50	15	50	20	-014.8226034
45	15	50	15	50	40	092.4302460
45	15	50	15	50	60	005.0600342
45	15	50	15	50	80	007.5188698
45	15	60	05	40	30	009.9720785
45	15	60	05	40	50	000.7993425
45	15	60	05	40	70	-004.3929109
45	15	60	15	40	30	-000.2426900
45	15	60	15	40	50	000.4802656
45	15	60	15	40	70	004.6709579
45	15	60	15	60	30	001.8850592
45	15	60	15	60	50	-061.3821114
45	15	60	15	60	70	-058.6947102

IV. ACKNOWLEDGMENTS

I should like to record my thanks to Dr. B. H. Bransden for checking the definitions of the angular coefficients and for calculating the values for $J = 1/2$. I am also indebted to Mr. John W. Stephenson for his considerable assistance in the programming of the first few coefficients. Finally, I wish to thank the Manager of Data Processing, Mr. Roy Kucera, for making time available on the IBM-650, and to his staff, in particular Miss Dorothy Maren, for their assistance in preparing the programs for the machine.

V. BIBLIOGRAPHY

- B. H. Bransden, H. S. W. Massey, K. Smith and C. Tate (1958), to be published.
- A. Arima, H. Horie and Y. Tanabe (1954), Prog. Theoret Phys. 11, 143.
- K. Smith, (1957) Ph.D Thesis, London University.
- L. I. Schiff, (1955), "Quantum Mechanics" second edition, McGraw-Hill Book Co., Inc., p. 235.
- M. E. Rose, (1955), "Multipole Fields", Chapman and Hall.
- G. Racah, (1942), Phys. Rev. 62, 438.
- S. Obi, T. Ishidzu, H. Horie, S. Yanagawa, Y. Tanabe and M. Sato, Ann. Tokyo Astr. Obs. IV 2, 77 (1955).
- A. Simon, J. H. vander Sluis and L. C. Biedenharn, ORNL 1679, (1954).
- K. Smith and J. W. Stephenson, ANL 5776, (1957).
- R. J. Ord-Smith, Phys. Rev. 94, 1227 (1954).
- J. W. Stephenson and K. Smith, Proc. Phys. Soc. London A70, (1957).
- J. M. Blatt, L. C. Biedenharn and M. E. Rose, Revs. Mod. Phys. 24, (1952).