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WAPD-TM-168
AEC RESEARCH AND
DEVELOPMENT REPORT

BLACKNESS THEORY AND COEFFICIENTS FOR SLAB GEOMETRY

May 1959

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ABSTRACT

"Blackness theory" is described as a class of procedures for matching a high order transport approximation in one region to a low order approximation in a second region. The matching conditions are presented as a generalization of the Marshak boundary conditions. The blackness coefficients necessary in setting up the conditions are defined and tables are given for slab geometry.

A method which allows all regions to be treated by means of the blackness coefficients is developed and applied to two region cells. Numerical results are compared with other approximations in situations typical of those encountered in resonance capture and thermal utilization calculations.

I. INTRODUCTION

The term "blackness theory" has come to refer to a class of procedures for matching an approximate solution of the one energy transport equation in one region to a rigorous or very accurate solution in a second region. Such procedures were apparently first used by Placzek to treat purely absorbing media. The matching or boundary conditions, as formulated here, constitute a generalization of the Marshak boundary conditions. The definitions of the blackness coefficients used in the matching conditions are given first and are related to the capture fractions given by Schiff and Stein.⁽¹⁾ Next, the conditions are developed for a general three region problem and specialized to cases of particular interest.

A method of treating both regions of a two region cell by means of the blackness coefficients is presented. This "double blackness" approximation is then compared to other approximation schemes and a qualitative discussion of the sources of error follows.

II. BLACKNESS COEFFICIENTS

The coefficients needed in the matching conditions to be described are obtained by considering a slab of thickness τ isolated in a vacuum as shown in Fig. 1.

Fig. 1

The slab is assumed to scatter isotropically and has scattering cross section Σ_s and total cross section Σ . The angular flux incident on the left boundary is of

the form μ^n (where μ is the cosine of the angle between the flux direction and the slab normal) and no neutrons enter the slab from the right. The solution to this problem must satisfy for $0 \leq x \leq \tau$:

$$\mu \frac{\partial \psi_n(x, \mu)}{\partial x} + \Sigma \psi_n(x, \mu) = \frac{\Sigma_s}{2} \int_{-1}^1 d\mu' \psi_n(x, \mu')$$

subject to

$$\psi_n(0, \mu) = \mu^n, \quad \mu > 0$$

and

$$\psi_n(\tau, \mu) = 0, \quad \mu < 0.$$

The coefficients of interest are

$$T_{mn}(\Sigma \tau, \frac{\Sigma_s}{\Sigma}) = \int_0^1 d\mu \mu^m \psi_n(\tau, \mu) \quad (1)$$

and

$$R_{mn}(\Sigma \tau, \frac{\Sigma_s}{\Sigma}) = (-1)^m \int_{-1}^0 d\mu \mu^m \psi_n(0, \mu). \quad (2)$$

The T_{mn} and R_{mn} are respectively the transmitted and reflected contributions to the outgoing m^{th} moments due to a μ^n incoming flux. They are defined to always be positive numbers and are functions of the optical thickness $\Sigma \tau$ and the scattering to total cross section ratio Σ_s/Σ .

In addition to the T_{mn} and R_{mn} , it is desirable to introduce the escape moments U_m defined by

$$U_m(\Sigma \tau, \frac{\Sigma_s}{\Sigma}) = \int_0^1 d\mu \mu^m \psi_e(\tau, \mu) \quad (3)$$

for the arrangement of Fig. 1. $\psi_e(\tau, \mu)$ is the angular flux at the right hand boundary for the problem where no neutrons enter the slab through the boundaries

but a flat isotropic source of unit density exists in the slab, thus for

$$0 \leq x \leq \tau:$$

$$\mu \frac{\partial \psi_e(x, \mu)}{\partial x} + \Sigma \psi_e(x, \mu) = \frac{\Sigma_s}{2} \int_{-1}^1 d\mu' \psi(x, \mu') + \frac{1}{2}$$

with

$$\psi_e(0, \mu) = 0, \quad \mu > 0$$

and

$$\psi_e(\tau, \mu) = 0, \quad \mu < 0.$$

All escape moments U_m except U_0 are related to the R_{1n} and T_{1n} by the reciprocity theorem.

Considering a slab with entering angular flux $|\mu|^n$ at each boundary, the number of neutrons escaping the slab at each boundary is $R_{1n} + T_{1n}$. The number of neutrons entering at each boundary is $1/(n+2)$, thus the escape fraction is $(n+2)(R_{1n} + T_{1n})$ and the capture fraction becomes:

$$F_n = 1 - (n+2)(R_{1n} + T_{1n}).$$

The F_n are the quantities tabulated by Schiff and Stein,⁽¹⁾ who also relate the escape fractions for an entering μ^n flux to the escape moments for an internal isotropic flat source. The relation obtained is^{*}

$$U_m = \frac{F_{m-1}}{2\Sigma_a(m+1)},$$

or

$$U_m = \frac{1 - (m+1)S_{1,m-1}}{2\Sigma_a(m+1)}, \quad (4)$$

where

$$S_{mn} = R_{mn} + T_{mn}. \quad (5)$$

Although the quantities S_{mn} are not independent of the R_{mn} and T_{mn} , they are of

^{*}See Eq. (7) of Ref. 1.

special importance and are therefore given their own symbol. S_{mn} represents the m^{th} outgoing half range moment for the entering angular flux μ^n in the case of a cell of half thickness $t = \tau/2$. U_1 represents the number of neutrons escaping from each boundary of the slab. Since a source of unit density is present, there are $2t$ neutrons produced in the slab. Thus U_1 is related to the escape probability P_0 through

$$P_0 = U_1/t$$

The coefficients presented here are also similar to those presented by other authors. In particular, our R_{10} , T_{10} and U_1 are identical to the R , T , and $E/2$ of Wachspress. ⁽²⁾

In general, the blackness coefficients must be computed numerically; however, in the case of a pure absorber they may be expressed analytically. In this case, there is no reflection and R_{mn} is zero. The angular flux is just

$$\begin{aligned} \psi_n(x, \mu) &= \mu^n e^{-\frac{\Sigma x}{\mu}}, \quad \mu > 0 \\ &= 0, \quad \mu < 0 \end{aligned}$$

Therefore

$$T_{mn}(\Sigma \tau) = S_{mn}(\Sigma \tau) = \int_0^1 d\mu \mu^{m+n} e^{-\frac{\Sigma \tau}{\mu}},$$

or

$$= E_{m+n+2}(\Sigma \tau)$$

where the $E_k(x)$ are the generalized exponential integral functions of order k . The values of the R_{mn} and T_{mn} have been calculated for a wide range of $\Sigma \tau$ and Σ_s/Σ . A discrete ordinates code ⁽³⁾ using the double-Gauss quadrature formula was employed. Twelve, ten, and eight angles were used for optical thicknesses between 0.25 and 1.0, 1.25 and 2.0, and 2.5 and 20.0 respectively for all except the pure scattering cases. The results have been checked for pure absorbers and for all

scattering ratios where the optical thickness is 20.0. The latter cases are essentially infinite in thickness and in this case the ratio of scalar flux to incident flux can be obtained analytically. Comparison of the thick region results with the analytic results shows an error of less than 0.01% in all cases. The pure absorber cases were compared with tables of the E_k functions. For the smallest thickness ($\Sigma \tau = 0.25$) the error was 0.14%, while for all other thicknesses the errors were less than 0.05%. The pure scattering cases were obtained with eight angles and fewer points and are probably only accurate to the order of 1%. The results are tabulated for m and n equal zero and one in Table II.* U_0 which cannot be obtained from the R_{mn} and T_{mn} is given in Table III and was obtained from calculations with the same code as used for the R and T matrices.

III. MATCHING CONDITIONS

The three region case, in which the central region is to be treated only with coefficients which establish conditions on the solutions in the outer regions, is the most general type of problem to be treated. The configuration is shown in Fig. 2 below.

Fig. 2

Region II is restricted to isotropically scattering media and to a flat isotropic source of density S^{II} . The angular fluxes at the two interfaces and in the three regions are designated by:

$$\psi_I(0, \mu), \psi_{II}(0, \mu), \psi_{II}(\tau, \mu), \text{ and } \psi_{III}(\tau, \mu).$$

*An abbreviated version of this table has been published in Ref. 4. 183

The angular flux at the interface in region I is assumed to be of the form

$$\psi_I(0, \mu) = \sum_{n=0}^N A_n \mu^n, \quad \mu > 0,$$

$$\psi_I(0, \mu) = \sum_{n=0}^N C_n \mu^n, \quad \mu < 0.$$

In region III at $x = \tau$ the angular flux is assumed given by:

$$\psi_{III}(\tau, \mu) = \sum_{n=0}^N B_n \mu^n, \quad \mu < 0;$$

and

$$\psi_{III}(\tau, \mu) = \sum_{n=0}^N D_n \mu^n, \quad \mu > 0.$$

Entering region II, the flux is considered to be continuous across the boundaries as in transport theory, thus:

$$\psi_{II}(0, \mu) = \psi_I(0, \mu), \quad \mu > 0;$$

and

$$\psi_{II}(\tau, \mu) = \psi_{III}(\tau, \mu), \quad \mu < 0.$$

Leaving region II, the half range moments of the flux are assumed continuous across the interfaces (since the entering fluxes are already continuous, this is equivalent to making the full range moments continuous). Denote the m^{th} half range moment of the flux leaving region II at the $x = 0$ interface (i.e. to the left) by $L_{II}^m(0)$, and the left half range moment at the interface in region I by $L_I^m(0)$. Similarly, at the interface of regions II and III the right hand moments are denoted by $R_{II}^m(\tau)$ and $R_{III}^m(\tau)$ respectively. The boundary conditions on the flux leaving region II can now be stated as:

$$L_I^m(0) = L_{II}^m(0),$$

and

$$R_{II}^m(\tau) = R_{III}^m(\tau).$$

$L_I^m(0)$ is given by

$$L_I^m(0) = \int_{-1}^0 d\mu \mu^m \sum_{n=0}^N C_n \mu^n = \sum_{n=0}^N \frac{(-1)^{m+n} C_n}{m+n+1},$$

while $L_{II}^m(0)$ is

$$L_{II}^m(0) = \sum_{n=0}^N \left[(-1)^m R_{mn} A_n + (-1)^{m+n} T_{mn} B_n \right] + (-1)^m S^{II} U_m.$$

Equating these yields:

$$\sum_{n=0}^N \left[\frac{(-1)^n C_n}{m+n+1} - R_{mn} A_n - (-1)^n T_{mn} B_n \right] = S^{II} U_m.$$

Letting m range from 0 to N gives $N+1$ conditions on the $3N+3$ variables A_n , B_n , and C_n . At the other interface $R_{III}^m(\tau)$ is found to be

$$R_{III}^m(\tau) = \int_0^1 d\mu \mu^m \sum_{n=0}^N D_n \mu^n = \sum_{n=0}^N \frac{D_n}{m+n+1}$$

while $R_{II}^m(\tau)$ is

$$R_{II}^m(\tau) = \sum_{n=0}^N \left[(-1)^n R_{mn} B_n + T_{mn} A_n \right] + S^{II} U_m.$$

Equating these expressions yields

$$\sum_{n=0}^N \left[\frac{D_n}{m+n+1} - (-1)^n R_{mn} B_n - T_{mn} A_n \right] = S^{II} U_m,$$

a set of $N+1$ conditions for $m=0$ to N on the coefficients A_n , B_n , and D_n .

Taken with the previous $N+1$ conditions there are in all $2N+2$ conditions on the $4N+4$ coefficients A_n , B_n , C_n , and D_n . This is the correct number of conditions since the conditions are complete at the two boundaries treated and an equal number of conditions can be fixed at the other two boundaries of regions I and III.

Various special cases can now be discussed. If for example, the boundary vector fluxes in regions I and III are actually expanded in a power series in μ

for the full range of μ (i.e. -1 to 1), this requires

$$A_n = C_n$$

and

$$B_n = D_n$$

In this case the matching conditions become

$$\sum_{n=0}^N \left[\left(\frac{(-1)^n}{m+n+1} - R_{mn} \right) A_n - (-1)^n T_{mn} B_n \right] = S^{II} U_m,$$

and

$$\sum_{n=0}^N \left[\left(\frac{1}{m+n+1} - (-1)^n R_{mn} \right) B_n - T_{mn} A_n \right] = S^{II} U_m.$$

However only $N + 1$ of the $2N + 2$ relations can be used in this case. There are correspondingly only $2N + 2$ coefficients involved. It turns out that one can match the even or the odd moments and obtain the transport boundary conditions in the limit where N tends to infinity. The odd moments are usually chosen in order to include the first moment which brings about neutron conservation. The reasoning involved in deciding that only even or odd moments can be matched is the same as that given by Stein in WAPD-139. (5) It is only necessary to point out that in matching the vector flux to the right (or left) and the half range moments to the left (or right), one is of necessity matching ψ for $\mu > 0$ (or $\mu < 0$) and the full range moments, thus his arguments may be taken over directly.

Another special case of considerable interest is that of a slab cell. This case is obtained by taking the center line of region II as an axis of symmetry and requiring in the present notation:

$$B_n = (-1)^n A_n,$$

and

$$D_n = (-1)^n C_n.$$

Substitution in the matching conditions yields

$$\sum_{n=0}^N \left[\frac{(-1)^n C_n}{m+n+1} - S_{mn} A_n \right] = S^{II} U_m$$

at either boundary. This is a set of $N + 1$ conditions on the $2N + 2$ coefficients A_n and C_n . In the special case of $N = 0$, the first moment is usually matched even though it goes with a power of μ not included in the angular flux. However it is needed for neutron conservation. If full range expansions are used the C_n are again equal to the A_n and the conditions become:

$$\sum_{n=0}^N \left[\frac{(-1)^n}{m+n+1} - S_{mn} \right] A_n = S^{II} U_m ,$$

where only the $(N + 1)/2$ odd or even m 's may be used.

The matching conditions reduce in special cases to a number of well known boundary conditions. For example the blackness boundary conditions for the P_1 approximation in a cell are the same as those given by Stein⁽⁵⁾ and in the noncellular case are the same as those of Goldsmith.⁽⁶⁾ If D- P_N equations of the same order as the matching conditions were used to calculate the blackness coefficients, the conditions would be identical with those introduced by Bengston for Yvon's method.⁽⁷⁾ The boundary conditions presented here may be used in the Bettis FLIP 2 code.⁽⁸⁾ The relation between the blackness coefficients and the input parameters of the code is given in Appendix A.

IV. DOUBLE BLACKNESS

In the previous section, no mention was made of the approximation of the transport equation to be used in the outer regions. It was only necessary to require a full or half range expansion of the solution at the boundary. This

makes the conditions fit in rather naturally with the P_n and $D-P_n$ approximations. However, a different approximation can be obtained by use of the transport equation itself in the outer regions provided only isotropic flat sources occur there. The restriction to flat isotropic sources is not necessary in principle, but the escape moments for sources of other shapes would lead to an inordinate amount of tabulation and is thus impractical. Such an approach requires solutions of the transport equation which reduce to powers of μ at the interface, but these are just the solutions obtained in calculating the blackness coefficients. Thus if the main interest is in properties of solutions at interfaces, the blackness coefficients can be applied to all regions of a problem. This method will be called the double blackness (D-B1) approximation. The method is applied here to a two region cell as shown in Fig. 3.

Fig. 3

As blackness coefficients for both regions are to be used, the region referred to is indicated by a superscript I or II. Flat isotropic sources of density S^I and S^{II} are assumed present in regions I and II respectively. The angular flux at the interface as in the previous treatment of a cell is assumed to have the form:

$$\psi(0, \mu) = \sum_{n=0}^N A_n \mu^n, \quad \mu > 0$$

$$= \sum_{n=0}^N C_n \mu^n, \quad \mu < 0$$

The right going half range moments in I and II are

$$R_I^m = \sum_{n=0}^N (-1)^n S_{mn}^I C_n + S_{U_m}^{I I} ,$$

and

$$R_{II}^m = \sum_{n=0}^N \frac{A_n}{m+n+1} .$$

The left going half range moments are

$$L_I^m = \sum_{n=0}^N \frac{(-1)^{m+n} C_n}{m+n+1}$$

and

$$L_{II}^m = \sum_{n=0}^N (-1)^m S_{mn}^{II} A_n + (-1)^m S_{U_m}^{II II} .$$

Equating the two left and right going moments gives:

$$\sum_{n=0}^N \left[\frac{A_n}{m+n+1} - (-1)^n S_{mn}^I C_n \right] = S_{U_m}^{I I} ,$$

and

$$\sum_{n=0}^N \left[\frac{(-1)^n C_n}{m+n+1} - S_{mn}^{II} A_n \right] = S_{U_m}^{II II} .$$

This is a set of $2N + 2$ equations in the $2N + 2$ unknowns A_n and C_n . They can be solved and $\psi(o, \mu)$ constructed. Then j for example is given by

$$j = \sum_{n=0}^N \frac{A_n - (-1)^n C_n}{n+2}$$

while φ becomes

$$\varphi = \sum_{n=0}^N \frac{A_n + (-1)^n C_n}{n+1} .$$

As an example, the lowest order expansion would be to assume the flux isotropic in both directions, i.e. $N = 0$. The equations for matching the first moments ($m = 1$) are then:

$$\frac{1}{2} C_0 - S_{10}^{II} A_0 = S_{11}^{II} U_1^{II} ,$$

$$\frac{1}{2} A_0 - S_{10}^I C_0 = S_{11}^I U_1^I .$$

Here

$$j = \frac{1}{2} (A_0 - C_0) \text{ and } \varphi = A_0 + C_0$$

which on solving the equations leads to

$$j = \frac{S_{11}^I U_1^I (1 - 2S_{10}^{II}) - S_{11}^{II} U_1^{II} (1 - 2S_{10}^I)}{1 - 4S_{10}^I S_{10}^{II}} ,$$

and

$$\varphi = \frac{2S_{11}^I U_1^I (1 + 2S_{10}^{II}) + 2S_{11}^{II} U_1^{II} (1 + 2S_{10}^I)}{1 - 4S_{10}^I S_{10}^{II}} .$$

This is called the D-BI₀ approximation, and it reduces to the ordinary D-P₀ result for the two region problem if the S_{mn} and U_m are calculated in the D-P₀ approximation for each region. The next order approximation where $N = 1$ (the D-BI₁ approximation) can be worked out similarly.

V. APPLICATIONS AND RESULTS

There are three main types of problems for which the D-BI approximations have been considered. These are the problems of resonance capture in a slab cell, absorption in control rods, and thermal utilization in a cell. Sample calculations have been carried out for the first and third of these problems. In the

resonance capture problem, the moderator is assumed to remove the neutrons from the narrow group containing the resonance. This results in the moderator being treated formally as a pure absorber. The fuel scattering may remove neutrons from the group or scatter them isotropically depending on whether the resonance is assumed thin or thick for fuel moderation. Flat isotropic sources due to slowing in from above the resonance can be introduced in both regions, or in the moderator alone. In either case, knowledge of the current enables a calculation of the resonance absorption. Several series of problems of this type have been solved for the current. In the case of two pure absorbers with a source in the moderating region, a transport solution in integral form was evaluated numerically. The results are used for comparison and are shown in Fig. 4. The $D-BI_0$ and $D-BI_1$ approximations (i.e. using the lowest two orders of expansion); and the P_1 , $D-P_0$, and $D-P_1$ approximations in region II with a blackness treatment of region I have been used to solve the same series of problems. The approximate currents are divided by the corresponding transport solutions and plotted against the optical half thickness of region II holding region I constant. The results are shown in Figs. 5, 6, and 7 for $\Sigma_1 t_1$ equal 0.5, 1.0, and ∞ , deviation from one representing the fractional error in the approximation. The D-BI results are not shown on Fig. 7 since they are exact in that case. Figure 5 shows the poorest $D-BI_0$ and $D-BI_1$ results for this type problem. These curves show a maximum error of only 0.5% for $D-BI_1$ and 3% for $D-BI_0$, which represents a considerable improvement over the other comparable approximations. The situation encountered in calculating thermal utilization in a two region slab cell is that of a strong absorber with scattering next to a weakly absorbing but strongly scattering moderator containing a flat isotropic source. The quantity needed to obtain the thermal utilization constant is the ratio of the average flux in the fuel to the average flux in the moderator. This ratio can be obtained from a knowledge of the source strength

in the moderator, the interface current, and the physical parameters of the cell. With a source in the moderator only, the average flux in the fuel is just

$$\bar{\phi}_f = \frac{j}{\Sigma_{af} t_f}$$

while neutron balance in the moderator gives

$$\bar{\phi}_m = \frac{S_m t_m - j}{\Sigma_{am} t_m}.$$

The flux ratio is then

$$\frac{\bar{\phi}_f}{\bar{\phi}_m} = \frac{\Sigma_{am} t_m}{\Sigma_{af} t_f} \frac{j}{S_m t_m - j}.$$

This ratio has been calculated using the D-BL₀ and D-BL₁ approximations of the current, for a group of problems covering a variety of cells for which the results are available from a number of other approximations. (9) A discrete ordinates solution of the problems is also available and has been used for comparison. All results are tabulated in Table I. The D-BL₀ results are seen to be comparable in most cases to the D-P₁ approximation while the D-BL₁ results are usually a significant improvement over other approximations. However, it should be noted again that the problems are for moderators having isotropic scattering and a flat source. This limits the ability to approximate the thermal utilization where anisotropic scattering and spatially varying sources are important.

A study of Figs. 5, 6, and 7 shows that all of the approximations have their maximum errors for a cell half thickness in the neighborhood of a quarter to a half of a mean free path. This is also in agreement with the results in Table I. It appears that for a flat source in a region of this optical thickness, the interface flux varies in a very complicated manner as a function of angle which cannot adequately be represented by a low order polynomial in μ . Away from

the interface this is still true for these problems but since the blackness coefficients are calculated in a high order approximation, the double blackness approach picks up a considerable part of the error caused by the imposed boundary conditions.

VI. SUMMARY AND CONCLUSIONS

Blackness coefficients have been defined and tables for low order approximations in isotropically scattering slabs presented. The use of these coefficients has been developed as a system of boundary conditions at an interface. A method of "double blackness" has been described in which all regions are treated by means of the blackness coefficients. This method has been applied to a two region cell and numerical results compared with other approximations. The method is found to give better accuracy than other low order approximations while requiring only the use of the tables and a hand calculation.

INTERFACE CURRENT IN PURELY ABSORBING SLAB CELL
WITH FLAT SOURCE IN ONE REGION

RATIO OF CURRENT PREDICTED BY VARIOUS BLACKNESS APPROXIMATIONS TO TRANSPORT THEORY RESULT

Fig. 5

RATIO OF CURRENT PREDICTED BY VARIOUS BLACKNESS APPROXIMATIONS TO TRANSPORT THEORY RESULT

Fig. 7

Table I

Comparison of the D-BL₀ and D-BL₁ Approximations with the
P₁, D-P₀, P₃ and D-P₁ Approximations

Unit Source in the Moderator

$$\Sigma_{sf} = 0.3, \Sigma_{am} = 0.02, \Sigma_{sm} = 3.12, \bar{\mu}_m = 0$$

Problem Parameters

$$\bar{\phi}_f / \bar{\phi}_m$$

(Percentage errors in parentheses)

Problem Number	t_m	t_f	Σ_{af}	RDR 4	P ₁	DP ₀	P ₃	DP ₁	D-BL ₀	D-BL ₁
1	0.127	0.127	0.1	0.9685	0.9943 (2.7%)	0.9925 (2.5%)	0.9888 (2.1%)	0.9803 (1.2%)	0.9652 (-0.3%)	0.9698 (0.1%)
2	0.127	1.27	0.1	0.7824	0.8974 (14.7%)	0.8680 (10.9%)	0.8310 (6.2%)	0.7775 (-0.6%)	0.7721 (-1.3%)	0.7816 (-0.09%)
3	1.27	0.127	0.1	0.9209	0.9523 (3.4%)	0.9377 (1.8%)	0.9377 (1.8%)	0.9282 (0.3%)	0.9288 (0.9%)	0.9177 (-0.3%)
4	1.27	1.27	0.1	0.5904	0.6410 (8.6%)	0.5740 (-2.8%)	0.5977 (1.2%)	0.5873 (-0.5%)	0.5966 (1.1%)	0.5903 (-0.2%)
5	0.127	0.127	1.0	0.7881	0.9333 (18.4%)	0.9130 (15.8%)	0.8789 (11.5%)	0.8135 (3.2%)	0.7620 (-3.3%)	0.7914 (+0.4%)
6	0.127	1.27	1.0	0.2300	0.3281 (42.7%)	0.2786 (21.1%)	0.2549 (10.8%)	0.2233 (-2.9%)	0.2279 (-0.9%)	0.2272 (-1.2%)
7	1.27	0.127	1.0	0.5720	0.6591 (15.2%)	0.5933 (3.7%)	0.6009 (5.1%)	0.5745 (0.4%)	0.5905 (3.2%)	0.5692 (-0.5%)
8	1.27	1.27	1.0	0.1219	0.1333 (9.4%)	0.1054 (-13.5%)	0.1230 (0.9%)	0.1218 (-0.1%)	0.1219 (0%)	0.1219 (0%)

APPENDIX A

FLIP 2, an IBM 704 code which solves the P_n and $D-P_n$ equations in slab geometry, can use boundary conditions of the form

$$\psi_0 = a_1 \chi_0 + b_1 \chi_1$$

$$\psi_1 = a_2 \chi_0 + b_2 \chi_1$$

to eliminate a symmetrically located region in the $D-P_1$ approximation. a_1 , b_1 , a_2 , and b_2 are input parameters. In this case the angular flux is assumed to have the form

$$\begin{aligned} \psi(\mu) &= \psi_0 + 3\psi_1(2\mu - 1), \quad \mu > 0 \\ &= \chi_0 + 3\chi_1(2\mu + 1), \quad \mu < 0, \end{aligned}$$

or more conveniently:

$$\begin{aligned} \psi(\mu) &= (\psi_0 - 3\psi_1) + 6\psi_1\mu, \quad \mu > 0 \\ &= (\chi_0 + 3\chi_1) + 6\chi_1\mu, \quad \mu < 0. \end{aligned}$$

The blackness matching conditions now give at a left hand boundary

$$s_{00}(\chi_0 + 3\chi_1) - 6s_{01}\chi_1 = \psi_0,$$

$$s_{10}(\chi_0 + 3\chi_1) - 6s_{11}\chi_1 = \frac{1}{2}\psi_0 + \frac{1}{2}\psi_1,$$

or

$$\psi_0 = s_{00}\chi_0 + 3(s_{00} - 2s_{01})\chi_1,$$

$$\psi_1 = (2s_{10} - s_{00})\chi_0 + 3(2s_{10} - s_{00} + 2s_{01} - 4s_{11})\chi_1.$$

The code input parameters are thus given in terms of the blackness coefficients as

$$a_1 = S_{00}$$

$$b_1 = 3 (S_{00} - 2 S_{01})$$

$$a_2 = (2 S_{10} - S_{00})$$

$$b_2 = 3 (2 S_{10} - S_{00} + 2 S_{01} - 4 S_{11})$$

These expressions are also true at a right hand boundary in FLIP 2.

ACKNOWLEDGMENTS

The author wishes to thank Dr. S. Stein and Dr. E. Gelbard for many helpful discussions of several aspects of this work and Mr. L. Hageman whose discrete ordinates codes were employed in obtaining the tables.

Table II

Blackness Coefficients for Slabs

$\Sigma \tau$ from 0.25 to 20.0

$\frac{\Sigma s}{\Sigma}$ from 0 to 1.0 in increments of 0.1

T SIGMA= .25 SIGMA(S)/SIGMA= .00
 ALPHA= 10325 BETA= 1 27274

R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

51848	32472	23254	18017
32472	23254	18017	14675
23254	18017	14675	12369
18017	14675	12369	10684

S (1/2 T SIGMA= .125)

51848	32472	23254	18017
32472	23254	18017	14675
23254	18017	14675	12369
18017	14675	12369	10684

T SIGMA= .50 SIGMA(S)/SIGMA= .00
 ALPHA= 18616 BETA= 1 14309

R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

32652	22156	16524	13098
22156	16524	13098	10821
16524	13098	10821	-1 92070
13098	10821	-1 92070	-1 80070

S (1/2 T SIGMA= .250)

32652	22156	16524	13098
22156	16524	13098	10821
16524	13098	10821	-1 92070
13098	10821	-1 92070	-1 80070

T SIGMA= .75 SIGMA(S)/SIGMA= .00
 ALPHA= 25455 BETA= 1 10172

R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

21700	15476	11876	-1 95822
15476	11876	-1 95822	-1 80098
11876	-1 95822	-1 80098	-1 68714
-1 95822	-1 80098	-1 68714	-1 60118

S (1/2 T SIGMA= .375)

21700	15476	11876	-1 95822
15476	11876	-1 95822	-1 80098
11876	-1 95822	-1 80098	-1 68714
-1 95822	-1 80098	-1 68714	-1 60118

T SIGMA= 1.00 SIGMA(S)/SIGMA= .00
 ALPHA= 31021 BETA= 82190
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

14849	10970	-1 86061	-1 70452
10970	-1 86061	-1 70452	-1 59484
-1 86061	-1 70452	-1 59484	-1 51398
-1 70452	-1 59484	-1 51398	-1 45211

S (1/2 T SIGMA= .500)

14849	10970	-1 86061	-1 70452
10970	-1 86061	-1 70452	-1 59484
-1 86061	-1 70452	-1 59484	-1 51398
-1 70452	-1 59484	-1 51398	-1 45211

T SIGMA= 1.25 SIGMA(S)/SIGMA= .00
 ALPHA= 35464 BETA= 71281
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

10344	-1 78583	-1 62767	-1 52011
-1 78583	-1 62767	-1 52011	-1 44296
-1 62767	-1 52011	-1 44296	-1 38521
-1 52011	-1 44296	-1 38521	-1 34050

S (1/2 T SIGMA= .625)

10344	-1 78583	-1 62767	-1 52011
-1 78583	-1 62767	-1 52011	-1 44296
-1 62767	-1 52011	-1 44296	-1 38521
-1 52011	-1 44296	-1 38521	-1 34050

T SIGMA= 1.50 SIGMA(S)/SIGMA= .00
 ALPHA= 38949 BETA= 64590
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

-1 73115	-1 56751	-1 46006	-1 38527
-1 56751	-1 46006	-1 38527	-1 33065
-1 46006	-1 38527	-1 33065	-1 28921
-1 38527	-1 33065	-1 28921	-1 25677

S (1/2 T SIGMA= .750)

-1 73115	-1 56751	-1 46006	-1 38527
-1 56751	-1 46006	-1 38527	-1 33065
-1 46006	-1 38527	-1 33065	-1 28921
-1 38527	-1 33065	-1 28921	-1 25677

T SIGMA= 1.75 SIGMA(S)/SIGMA= .00
 ALPHA= 41645 BETA= 60245
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

-1 52192	-1 41243	-1 33864	-1 28622
-1 41243	-1 33864	-1 28622	-1 24734
-1 33864	-1 28622	-1 24734	-1 21747
-1 28622	-1 24734	-1 21747	-1 19387

S (1/2 T SIGMA= .875)

-1 52192	-1 41243	-1 33864	-1 28622
-1 41243	-1 33864	-1 28622	-1 24734
-1 33864	-1 28622	-1 24734	-1 21747
-1 28622	-1 24734	-1 21747	-1 19387

T SIGMA= 2.00 SIGMA(S)/SIGMA= .00
 ALPHA= 43707 BETA= 57315
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

-1 37549	-1 30131	-1 25017	-1 21319
-1 30131	-1 25017	-1 21319	-1 18536
-1 25017	-1 21319	-1 18536	-1 16375
-1 21319	-1 18536	-1 16375	-1 14653

S (1/2 T SIGMA= 1.000)

-1 37549	-1 30131	-1 25017	-1 21319
-1 30131	-1 25017	-1 21319	-1 18536
-1 25017	-1 21319	-1 18536	-1 16375
-1 21319	-1 18536	-1 16375	-1 14653

T SIGMA= 2.50 SIGMA(S)/SIGMA= .00
 ALPHA= 46451 BETA= 53855
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T

-1 19803	-1 16297	-1 13771	-1 11892
-1 16297	-1 13771	-1 11892	-1 10452
-1 13771	-1 11892	-1 10452	-2 93155
-1 11892	-1 10452	-2 93155	-2 83939

S (1/2 T SIGMA= 1.250)

-1 19803	-1 16297	-1 13771	-1 11892
-1 16297	-1 13771	-1 11892	-1 10452
-1 13771	-1 11892	-1 10452	-2 93155
-1 11892	-1 10452	-2 93155	-2 83939

T SIGMA= 3.00 SIGMA(S)/SIGMA= .00
 ALPHA= 48005 BETA= 52088
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T			
-1 10650	-2 89255	-2 76533	-2 66872
-2 89255	-2 76533	-2 66872	-2 59324
-2 76533	-2 66872	-2 59324	-2 53262
-2 66872	-2 59324	-2 53262	-2 48262

S (1/2 T SIGMA= 1.500)			
-1 10650	-2 89255	-2 76533	-2 66872
-2 89255	-2 76533	-2 66872	-2 59324
-2 76533	-2 66872	-2 59324	-2 53262
-2 66872	-2 59324	-2 53262	-2 48262

T SIGMA= 3.50 SIGMA(S)/SIGMA= .00
 ALPHA= 48878 BETA= 51152
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T			
-2 58013	-2 49372	-2 42870	-2 37839
-2 49372	-2 42870	-2 37839	-2 33837
-2 42870	-2 37839	-2 33837	-2 30567
-2 37839	-2 33837	-2 30567	-2 27828

S (1/2 T SIGMA= 1.750)			
-2 58013	-2 49372	-2 42870	-2 37839
-2 49372	-2 42870	-2 37839	-2 33837
-2 42870	-2 37839	-2 33837	-2 30567
-2 37839	-2 33837	-2 30567	-2 27828

T SIGMA= 4.00 SIGMA(S)/SIGMA= .00
 ALPHA= 49367 BETA= 50643
 R

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

T			
-2 31933	-2 27541	-2 24176	-2 21525
-2 27541	-2 24176	-2 21525	-2 19379
-2 24176	-2 21525	-2 19379	-2 17598
-2 21525	-2 19379	-2 17598	-2 16084

S (1/2 T SIGMA= 2.000)			
-2 31933	-2 27541	-2 24176	-2 21525
-2 27541	-2 24176	-2 21525	-2 19379
-2 24176	-2 21525	-2 19379	-2 17598
-2 21525	-2 19379	-2 17598	-2 16084

T SIGMA= 5.00 SIGMA(S)/SIGMA= .00
 ALPHA= 49796 BETA= 50205
 R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 T
 -3 99258 -3 87501 -3 78167 -3 70557
 -3 87501 -3 78167 -3 70557 -3 64196
 -3 78167 -3 70557 -3 64196 -3 58760
 -3 70557 -3 64196 -3 58760 -3 54024
 S (1/2 T SIGMA= 2.500)
 -3 99258 -3 87501 -3 78167 -3 70557
 -3 87501 -3 78167 -3 70557 -3 64196
 -3 78167 -3 70557 -3 64196 -3 58760
 -3 70557 -3 64196 -3 58760 -3 54024

T SIGMA= 6.00 SIGMA(S)/SIGMA= .00
 ALPHA= 49933 BETA= 50067
 R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 T
 -3 31675 -3 28386 -3 25685 -3 23412
 -3 28386 -3 25685 -3 23412 -3 21459
 -3 25685 -3 23412 -3 21459 -3 19749
 -3 23412 -3 21459 -3 19749 -3 18231
 S (1/2 T SIGMA= 3.000)
 -3 31675 -3 28386 -3 25685 -3 23412
 -3 28386 -3 25685 -3 23412 -3 21459
 -3 25685 -3 23412 -3 21459 -3 19749
 -3 23412 -3 21459 -3 19749 -3 18231

T SIGMA= 8.00 SIGMA(S)/SIGMA= .00
 ALPHA= 49993 BETA= 50007
 R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 T
 -4 34047 -4 31137 -4 28609 -4 26377
 -4 31137 -4 28609 -4 26377 -4 24382
 -4 28609 -4 26377 -4 24382 -4 22579
 -4 26377 -4 24382 -4 22579 -4 20937
 S (1/2 T SIGMA= 4.000)
 -4 34047 -4 31137 -4 28609 -4 26377
 -4 31137 -4 28609 -4 26377 -4 24382
 -4 28609 -4 26377 -4 24382 -4 22579
 -4 26377 -4 24382 -4 22579 -4 20937

T SIGMA= 10.00 SIGMA(S)/SIGMA= .00
 ALPHA= 49999 BETA= 50001

R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000

T
 -5 38103 -5 35186 -5 32560 -5 30177
 -5 35186 -5 32560 -5 30177 -5 28000
 -5 32560 -5 30177 -5 28000 -5 26001
 -5 30177 -5 28000 -5 26001 -5 24159

S (1/2 T SIGMA= 5.000)
 -5 38103 -5 35186 -5 32560 -5 30177
 -5 35186 -5 32560 -5 30177 -5 28000
 -5 32560 -5 30177 -5 28000 -5 26001
 -5 30177 -5 28000 -5 26001 -5 24159

T SIGMA= 14.00 SIGMA(S)/SIGMA= .00
 ALPHA= 50000 BETA= 50000

R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000

T
 -7 50417 -7 46847 -7 43549 -7 40494
 -7 46847 -7 43549 -7 40494 -7 37662
 -7 43549 -7 40494 -7 37662 -7 35033
 -7 40494 -7 37662 -7 35033 -7 32591

S (1/2 T SIGMA= 7.000)
 -7 50417 -7 46847 -7 43549 -7 40494
 -7 46847 -7 43549 -7 40494 -7 37662
 -7 43549 -7 40494 -7 37662 -7 35033
 -7 40494 -7 37662 -7 35033 -7 32591

T SIGMA= 20.00 SIGMA(S)/SIGMA= .00
 ALPHA= 50000 BETA= 50000

R
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000
 00000 00000 00000 00000

T
 -10 78993 -10 73500 -10 68391 -10 63638
 -10 73500 -10 68391 -10 63638 -10 59217
 -10 68391 -10 63638 -10 59217 -10 55104
 -10 63638 -10 59217 -10 55104 -10 51277

S (1/2 T SIGMA= 10.000)
 -10 78993 -10 73500 -10 68391 -10 63638
 -10 73500 -10 68391 -10 63638 -10 59217
 -10 68391 -10 63638 -10 59217 -10 55104
 -10 63638 -10 59217 -10 55104 -10 51277

T SIGMA= .25 SIGMA(S)/SIGMA= .10
 ALPHA= -1 94565 BETA= 1 27217

R
 -1 18802 -1 10527 -2 72311 -2 54922
 -2 65439 -2 37231 -2 25702 -2 19565
 -2 37231 -2 21260 -2 14694 -2 11192
 -2 25702 -2 14694 -2 10160 -3 77397

T
 53466 33423 23918 18525
 33085 23610 18264 14864
 23610 18223 14818 12478
 18264 14818 12468 10760

S (1/2 T SIGMA= .125)
 55347 34476 24641 19074
 33740 23982 18521 15060
 23982 18435 14965 12590
 18521 14965 12570 10837

T SIGMA= .50 SIGMA(S)/SIGMA= .10
 ALPHA= 17188 BETA= 1 14222

R
 -1 23230 -1 13397 -2 93223 -2 71282
 -2 88872 -2 52435 -2 36787 -2 28239
 -2 52435 -2 31129 -2 21891 -2 16824
 -2 36787 -2 21891 -2 15409 -2 11848

T
 34323 23203 17276 13683
 22897 16981 13424 11074
 16981 13378 11021 -1 93617
 13424 11021 -1 93494 -1 81172

S (1/2 T SIGMA= .250)
 36646 24542 18209 14396
 23785 17505 13792 11356
 17505 13689 11240 -1 95300
 13792 11240 -1 95035 -1 82356

T SIGMA= .75 SIGMA(S)/SIGMA= .10
 ALPHA= 23653 BETA= 1 10063

R
 -1 24920 -1 14566 -1 10204 -2 78317
 -2 99009 -2 59445 -2 42074 -2 32460
 -2 59445 -2 35978 -2 25549 -2 19744
 -2 42074 -2 25549 -2 18168 -2 14051

T
 23161 16431 12579 10135
 16185 12332 -1 99145 -1 82704
 12332 -1 98731 -1 82215 -1 70371
 -1 99145 -1 82215 -1 70252 -1 61320

S (1/2 T SIGMA= .375)
 25653 17888 13599 10918
 17175 12926 10335 -1 85950
 12926 10233 -1 84770 -1 72345
 10335 -1 84770 -1 72069 -1 62726

T SIGMA= 1.00 SIGMA(S)/SIGMA= .10
 ALPHA= 28981 BETA= 80926

R
 -1 25655 -1 15095 -1 10613 -2 81633
 -1 10375 -2 62859 -2 44713 -2 34601
 -2 62859 -2 38439 -2 27451 -2 21287
 -2 44713 -2 27451 -2 19639 -2 15244

T
 16056 11784 -1 92156 -1 75306
 11593 -1 90191 -1 73516 -1 61911
 -1 90191 -1 73169 -1 61493 -1 52986
 -1 73516 -1 61493 -1 52881 -1 46382

S (1/2 T SIGMA= .500)
 18622 13293 10277 -1 83469
 12631 -1 96477 -1 77988 -1 65371
 -1 96477 -1 77013 -1 64238 -1 55115
 -1 77988 -1 64238 -1 54845 -1 47906

T SIGMA= 1.25 SIGMA(S)/SIGMA= .10
 ALPHA= 33287 BETA= 69874

R
 -1 25997 -1 15348 -1 10813 -2 83279
 -1 10607 -2 64577 -2 46068 -2 35714
 -2 64577 -2 39715 -2 28458 -2 22114
 -2 46068 -2 28458 -2 20433 -2 15896

T
 11315 -1 85295 -1 67867 -1 56111
 -1 83835 -1 66332 -1 54694 -1 46440
 -1 66332 -1 54413 -1 46096 -1 39957
 -1 54694 -1 46096 -1 39868 -1 35122

S (1/2 T SIGMA= .625)
 13915 10064 -1 78680 -1 64439
 -1 94441 -1 72790 -1 59301 -1 50012
 -1 72790 -1 58384 -1 48942 -1 42168
 -1 59301 -1 48942 -1 41911 -1 36712

T SIGMA= 1.50 SIGMA(S)/SIGMA= .10
 ALPHA= 36705 BETA= 63066

R
 -1 26162 -1 15474 -1 10914 -2 84116
 -1 10723 -2 65462 -2 46777 -2 36302
 -2 65462 -2 40388 -2 28997 -2 22562
 -2 46777 -2 28997 -2 20865 -2 16255

T
 -1 80801 -1 62175 -1 50180 -1 41910
 -1 61067 -1 48996 -1 40804 -1 34900
 -1 48996 -1 40581 -1 34623 -1 30172
 -1 40804 -1 34623 -1 30099 -1 26623

S (1/2 T SIGMA= .750)
 10696 -1 77648 -1 61094 -1 50322
 -1 71790 -1 55542 -1 45482 -1 38530
 -1 55542 -1 44620 -1 37523 -1 32428
 -1 45482 -1 37523 -1 32186 -1 28249

T SIGMA= 1.75 SIGMA(S)/SIGMA= .10
 ALPHA= 39378 BETA= 58624

R

-1 26245	-1 15538	-1 10966	-2 84552
-1 10783	-2 65925	-2 47153	-2 36618
-2 65925	-2 40748	-2 29289	-2 22807
-2 47153	-2 29289	-2 21102	-2 16454

T

-1 58224	-1 45573	-1 37232	-1 31373
-1 44735	-1 36324	-1 30516	-1 26270
-1 36324	-1 30341	-1 26050	-1 22812
-1 30516	-1 26050	-1 22753	-1 20199

S (1/2 T SIGMA= .875)

-1 84469	-1 61111	-1 48198	-1 39829
-1 55518	-1 42917	-1 35231	-1 29932
-1 42917	-1 34416	-1 28979	-1 25092
-1 35231	-1 28979	-1 24863	-1 21845

T SIGMA= 2.00 SIGMA(S)/SIGMA= .10
 ALPHA= 41444 BETA= 55614

R

-1 26287	-1 15571	-1 10993	-2 84784
-1 10814	-2 66172	-2 47355	-2 36789
-2 66172	-2 40942	-2 29448	-2 22942
-2 47355	-2 29448	-2 21233	-2 16564

T

-1 42255	-1 33558	-1 27709	-1 23533
-1 32925	-1 27015	-1 22871	-1 19804
-1 27015	-1 22735	-1 19631	-1 17266
-1 22871	-1 19631	-1 17219	-1 15339

S (1/2 T SIGMA= 1.000)

-1 68542	-1 49129	-1 38703	-1 32011
-1 43739	-1 33632	-1 27607	-1 23483
-1 33632	-1 26829	-1 22576	-1 19560
-1 27607	-1 22576	-1 19342	-1 16996

T SIGMA= 2.50 SIGMA(S)/SIGMA= .10
 ALPHA= 44232 BETA= 52034

R

-1 26321	-1 15595	-1 11016	-2 84974
-1 10843	-2 66375	-2 47526	-2 36933
-2 66375	-2 41104	-2 29584	-2 23057
-2 47526	-2 29584	-2 21346	-2 16661

T

-1 22633	-1 18410	-1 15458	-1 13295
-1 18048	-1 15055	-1 12905	-1 11288
-1 15055	-1 12824	-1 11184	-2 99177
-1 12905	-1 11184	-2 98885	-2 88646

S (1/2 T SIGMA= 1.250)

-1 48953	-1 34004	-1 26474	-1 21793
-1 28891	-1 21692	-1 17658	-1 14982
-1 21692	-1 16934	-1 14142	-1 12223
-1 17658	-1 14142	-1 12023	-1 10531

T SIGMA= 3.00 SIGMA(S)/SIGMA= .10
 ALPHA= 45838 BETA= 50189

R

-1 26330	-1 15602	-1 11022	-2 85030
-1 10850	-2 66435	-2 47578	-2 36977
-2 66435	-2 41153	-2 29626	-2 23094
-2 47578	-2 29626	-2 21382	-2 16692

T

-1 12340	-1 10211	-2 86934	-2 75608
-1 10005	-2 84597	-2 73323	-2 64702
-2 84597	-2 72840	-2 64072	-2 57205
-2 73323	-2 64072	-2 57027	-2 51383

S (1/2 T SIGMA= 1.500)

-1 38670	-1 25814	-1 19716	-1 16064
-1 20856	-1 15103	-1 12090	-1 10168
-1 15103	-1 11399	-2 93699	-2 80299
-1 12090	-2 93699	-2 78409	-2 68075

T SIGMA= 3.50 SIGMA(S)/SIGMA= .10
 ALPHA= 46752 BETA= 49200

R

-1 26333	-1 15605	-1 11024	-2 85048
-1 10852	-2 66454	-2 47593	-2 36991
-2 66454	-2 41169	-2 29639	-2 23105
-2 47593	-2 29639	-2 21393	-2 16701

T

-2 68067	-2 57138	-2 49222	-2 43220
-2 55960	-2 47868	-2 41882	-2 37235
-2 47868	-2 41597	-2 36859	-2 33098
-2 41882	-2 36859	-2 32990	-2 29852

S (1/2 T SIGMA= 1.750)

-1 33139	-1 21318	-1 15946	-1 12827
-1 16448	-1 11432	-2 89475	-2 74226
-1 11432	-2 82765	-2 66499	-2 56203
-2 89475	-2 66499	-2 54383	-2 46554

T SIGMA= 4.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47271 BETA= 48658

R

-1 26334	-1 15605	-1 11025	-2 85053
-1 10853	-2 66460	-2 47598	-2 36996
-2 66460	-2 41174	-2 29644	-2 23109
-2 47598	-2 29644	-2 21397	-2 16705

T

-2 37898	-2 32209	-2 28031	-2 24815
-2 31533	-2 27245	-2 24032	-2 21502
-2 27245	-2 23864	-2 21279	-2 19199
-2 24032	-2 21279	-2 19134	-2 17377

S (1/2 T SIGMA= 2.000)

-1 30123	-1 18826	-1 13828	-1 10987
-1 14006	-2 93705	-2 71630	-2 58498
-2 93705	-2 65037	-2 50922	-2 42308
-2 71630	-2 50922	-2 40531	-2 34081

T SIGMA= 5.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47733 BETA= 48185

R

-1 26334	-1 15606	-1 11025	-2 85055
-1 10853	-2 66462	-2 47600	-2 36998
-2 66462	-2 41176	-2 29645	-2 23111
-2 47600	-2 29645	-2 21398	-2 16706

T

-2 12018	-2 10423	-3 92207	-3 82692
-2 10198	-3 89545	-3 80001	-3 72293
-3 89545	-3 79419	-3 71509	-3 65003
-3 80002	-3 71509	-3 64771	-3 59142

S (1/2 T SIGMA= 2.500)

-1 27536	-1 16648	-1 11947	-2 93325
-1 11873	-2 75416	-2 55601	-2 44227
-2 75416	-2 49117	-2 36796	-2 29611
-2 55601	-2 36796	-2 27875	-2 22620

T SIGMA= 6.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47883 BETA= 48034

R

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T

-3 39008	-3 34347	-3 30753	-3 27836
-3 33590	-3 29846	-3 26912	-3 24489
-3 29846	-3 26710	-3 24216	-3 22126
-3 26912	-3 24216	-3 22044	-3 20204

S (1/2 T SIGMA= 3.000)

-1 26724	-1 15949	-1 11333	-2 87839
-1 11189	-2 69447	-2 50292	-2 39447
-2 69447	-2 43847	-2 32067	-2 25323
-2 50292	-2 32067	-2 23603	-2 18727

T SIGMA= 8.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47950 BETA= 47967

R

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T

-4 43107	-4 38683	-4 35142	-4 32159
-4 37809	-4 34081	-4 31066	-4 28501
-4 34081	-4 30826	-4 28172	-4 25895
-4 31066	-4 28172	-4 25795	-4 23743

S (1/2 T SIGMA= 4.000)

-1 26377	-1 15644	-1 11060	-2 85377
-1 10891	-2 66803	-2 47911	-2 37283
-2 66803	-2 41484	-2 29927	-2 23370
-2 47911	-2 29927	-2 21656	-2 16944

T SIGMA= 10.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47957 BETA= 47959

R

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T

-5 49391	-5 44733	-5 40921	-5 37640
-5 43711	-5 39672	-5 36347	-5 33471
-5 39672	-5 36062	-5 33079	-5 30488
-5 36347	-5 33079	-5 30369	-5 28008

S (1/2 T SIGMA= 5.000)

-1 26339	-1 15610	-1 11029	-2 85093
-1 10858	-2 66502	-2 47637	-2 37031
-2 66502	2 41212	-2 29679	-2 23141
-2 47637	-2 29679	-2 21429	-2 16734

T SIGMA= 14.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47958 BETA= 47958

R

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T

-7 68243	-7 62191	-7 57152	-7 52746
-7 60759	-7 55394	-7 50922	-7 47007
-7 55394	-7 50519	-7 46451	-7 42888
-7 50922	-7 46451	-7 42718	-7 39446

S (1/2 T SIGMA= 7.000)

-1 26334	-1 15606	-1 11025	-2 85056
-1 10854	-2 66463	-2 47601	-2 36998
-2 66463	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21399	-2 16707

T SIGMA= 20.00 SIGMA(S)/SIGMA= .10
 ALPHA= 47958 BETA= 47958

R

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T

-9 11400	-9 10404	-10 95706	-10 88396
-9 10164	-10 92758	-10 85333	-10 78817
-10 92758	-10 84657	-10 77883	-10 71937
-10 85333	-10 77883	-10 71652	-10 66182

S (1/2 T SIGMA= 10.000)

-1 26334	-1 15606	-1 11025	-2 85056
-1 10853	-2 66462	-2 47601	-2 36998
-2 66462	-2 41176	-2 29646	-2 23111
-2 47601	-2 29646	-2 21398	-2 16706

T SIGMA= .25 SIGMA(S)/SIGMA= .20
 ALPHA= -1 85568 BETA= 1 27159

R

-1 38715	-1 21690	-1 14902	-1 11319
-1 13492	-2 76786	-2 53013	-2 40357
-2 76786	-2 43857	-2 30314	-2 23089
-2 53013	-2 30314	-2 20961	-2 15968

T

55192	34436	24625	19066
33739	23989	18528	15066
23989	18442	14971	12594
18528	14971	12574	10841

S (1/2 T SIGMA= .125)

59064	36605	26115	20198
35088	24757	19058	15469
24757	18881	15274	12825
19058	15274	12783	11000

T SIGMA= .50 SIGMA(S)/SIGMA= .20
 ALPHA= 15686 BETA= 1 14133

R

-1 48417	-1 27963	-1 19468	-1 14890
-1 18580	-1 10971	-2 76993	-2 59112
-1 10971	-2 65174	-2 45844	-2 35237
-2 76993	-2 45844	-2 32276	-2 24820

T

36170	24357	18106	14327
23713	17483	13783	11352
17484	13687	11241	-1 95319
13783	11241	-1 95061	-1 82383

S (1/2 T SIGMA= .250)

41012	27153	20052	15816
25571	18581	14553	11943
18581	14338	11699	-1 98843
14553	11699	-1 98288	-1 84865

T SIGMA= .75 SIGMA(S)/SIGMA= .20
 ALPHA= 21733 BETA= 99504

R

-1 52285	-1 30624	-1 21472	-1 16487
-1 20865	-1 12545	-2 88838	-2 68558
-1 12545	-2 76009	-2 54001	-2 41743
-2 88838	-2 54001	-2 38418	-2 29718

T

24821	17513	13373	10760
16987	12846	10290	-1 85644
12846	10201	-1 84601	-1 72238
10290	-1 84601	-1 71984	-1 62675

S (1/2 T SIGMA= .375)

30049	20575	15520	12409
19073	14101	11178	-1 92500
14101	10961	-1 90001	-1 76413
11178	-1 90001	-1 75826	-1 55647

T SIGMA= 1.00 SIGMA(S)/SIGMA= .20
 ALPHA= 26787 BETA= 79610

		R	
-1 54024	-1 31870	-1 22432	-1 17265
-1 21968	-1 13334	-2 94927	-2 73489
-1 13334	-2 81668	-2 58364	-2 45275
-2 94927	-2 58364	-2 41782	-2 32442
		T	
17460	12727	-1 99199	-1 80908
12314	-1 94955	-1 77046	-1 64705
-1 94955	-1 76298	-1 63803	-1 54812
-1 77046	-1 63803	-1 54585	-1 47727
		S (1/2 T SIGMA= .500)	
22862	15914	12163	-1 98173
14511	10829	-1 86539	-1 72054
10829	-1 84465	-1 69640	-1 59340
-1 86539	-1 69640	-1 58763	-1 50971

T SIGMA= 1.25 SIGMA(S)/SIGMA= .20
 ALPHA= 30928 BETA= 68400

		R	
-1 54859	-1 32484	-1 22916	-1 17662
-1 22523	-1 13742	-2 98133	-2 76117
-1 13742	-2 84677	-2 60728	-2 47214
-2 98133	-2 60728	-2 43639	-2 33965
		T	
12466	-1 93215	-1 73869	-1 60929
-1 90020	-1 70518	-1 57839	-1 48952
-1 70518	-1 57226	-1 48202	-1 41635
-1 57839	-1 48202	-1 41441	-1 36374
		S (1/2 T SIGMA= .625)	
17952	12570	-1 96785	-1 78591
11254	-1 84261	-1 67652	-1 56569
-1 84261	-1 65694	-1 54275	-1 46356
-1 67652	-1 54275	-1 45805	-1 39771

T SIGMA= 1.50 SIGMA(S)/SIGMA= .20
 ALPHA= 34259 BETA= 61461

		R	
-1 55274	-1 32798	-1 23166	-1 17868
-1 22808	-1 13958	-2 99850	-2 77540
-1 13958	-2 86301	-2 62023	-2 48287
-2 99850	-2 62023	-2 44672	-2 34821
		T	
-1 90078	-1 68684	-1 55173	-1 45951
-1 66235	-1 52562	-1 43514	-1 37081
-1 52562	-1 43023	-1 36472	-1 31657
-1 43514	-1 36472	-1 31496	-1 27743
		S (1/2 T SIGMA= .750)	
14535	10148	-1 78339	-1 63819
-1 89043	-1 66520	-1 53499	-1 44835
-1 66520	-1 51654	-1 42675	-1 36485
-1 53499	-1 42675	-1 35964	-1 31225

T SIGMA= 1.75 SIGMA(S)/SIGMA= .20
 ALPHA= 36898 BETA= 56909

R

-1 55487	-1 32961	-1 23298	-1 17979
-1 22958	-1 14073	-1 10078	-2 78318
-1 14073	-2 87187	-2 62739	-2 48885
-1 10078	-2 62739	-2 45250	-2 35304

T

-1 65622	-1 50848	-1 41322	-1 34706
-1 48979	-1 39301	-1 32801	-1 28122
-1 39301	-1 32413	-1 27635	-1 24092
-1 32801	-1 27635	-1 23961	-1 21175

S (1/2 T SIGMA= .875)

12111	-1 83810	-1 64619	-1 52685
-1 71937	-1 53374	-1 42880	-1 35953
-1 53374	-1 41131	-1 33908	-1 28980
-1 42880	-1 33908	-1 28486	-1 24705

T SIGMA= 2.00 SIGMA(S)/SIGMA= .20
 ALPHA= 38963 BETA= 53807

R

-1 55599	-1 33048	-1 23368	-1 18039
-1 23039	-1 14136	-1 10129	-2 78748
-1 14136	-2 87675	-2 63137	-2 49221
-1 10129	-2 63137	-2 45575	-2 35578

T

-1 48111	-1 37793	-1 31022	-1 26250
-1 36368	-1 29464	-1 24768	-1 21350
-1 29464	-1 24463	-1 20964	-1 18350
-1 24768	-1 20964	-1 18245	-1 16172

S (1/2 T SIGMA= 1.000)

10371	-1 70841	-1 54391	-1 44288
-1 59407	-1 43599	-1 34898	-1 29225
-1 43599	-1 33230	-1 27278	-1 23272
-1 34898	-1 27278	-1 22803	-1 19729

T SIGMA= 2.50 SIGMA(S)/SIGMA= .20
 ALPHA= 41795 BETA= 50087

R

-1 55690	-1 33113	-1 23429	-1 18089
-1 23111	-1 14188	-1 10173	-2 79119
-1 14188	-2 88092	-2 63485	-2 49516
-1 10173	-2 63485	-2 45863	-2 35822

T

-1 26247	-1 21086	-1 17584	-1 15058
-1 20259	-1 16664	-1 14172	-1 12332
-1 16664	-1 13987	-1 12094	-1 10666
-1 14172	-1 12094	-1 10600	-2 94478

S (1/2 T SIGMA= 1.250)

-1 81937	-1 54199	-1 41013	-1 33147
-1 43370	-1 30853	-1 24345	-1 20244
-1 30853	-1 22796	-1 18443	-1 13617
-1 24345	-1 18443	-1 15186	-1 13030

T SIGMA= 3.00 SIGMA(S)/SIGMA= .20
 ALPHA= 43458 BETA= 48146

		R		
-1 55716	-1 33135		-1 23447	-1 18105
-1 23132	-1 14205		-1 10187	-2 79237
-1 14205	-2 88224		-2 63596	-2 49611
-1 10187	-2 63596		-2 45956	-2 35902
		T		
-1 14550	-1 11876		-1 10033	-2 86817
-1 11398	-2 94928		-2 81553	-2 71543
-2 94928	-2 80441		-2 70098	-2 62198
-2 81553	-2 70098		-2 61791	-2 55322
		S	(1/2 T SIGMA= 1.500)	
-1 70266	-1 45011		-1 33479	-1 26786
-1 34530	-1 23697		-1 18342	-1 15078
-1 23697	-1 16867		-1 13369	-1 11181
-1 18342	-1 13369		-1 10775	-2 91225

T SIGMA= 3.50 SIGMA(S)/SIGMA= .20
 ALPHA= 44421 BETA= 47093

		R		
-1 55724	-1 33142		-1 23452	-1 18110
-1 23138	-1 14210		-1 10191	-2 79275
-1 14210	-2 88266		-2 63631	-2 49642
-1 10191	-2 63631		-2 45987	-2 35929
		T		
-2 81484	-2 67396		-2 57562	-2 50255
-2 64625	-2 54392		-2 47134	-2 41636
-2 54392	-2 46470		-2 40763	-2 36358
-2 47134	-2 40763		-2 36108	-2 32450
		S	(1/2 T SIGMA= 1.750)	
-1 63873	-1 39881		-1 29208	-1 23135
-1 29600	-1 19649		-1 14905	-1 12091
-1 19649	-1 13474		-1 10439	-2 86000
-1 14905	-1 10439		-2 82094	-2 68379

T SIGMA= 4.00 SIGMA(S)/SIGMA= .20
 ALPHA= 44977 BETA= 46509

		R		
-1 55727	-1 33144		-1 23454	-1 18111
-1 23140	-1 14211		-1 10193	-2 79287
-1 14211	-2 88280		-2 63643	-2 49652
-1 10193	-2 63643		-2 45997	-2 35938
		T		
-2 46010	-2 38488		-2 33182	-2 29191
-2 36878	-2 31321		-2 27343	-2 24296
-2 31321	-2 26947		-2 23771	-2 21295
-2 27343	-2 23771		-2 21143	-2 19062
		S	(1/2 T SIGMA= 2.000)	
-1 60328	-1 36993		-1 26772	-1 21030
-1 26828	-1 17343		-1 12927	-1 10358
-1 17343	-1 11523		-2 87414	-2 70947
-1 12927	-2 87414		-2 67140	-2 54999

T SIGMA= 5.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45481 BETA= 45992

R

-1 55728	-1 33145	-1 23455	-1 18112
-1 23141	-1 14212	-1 10193	-2 79293
-1 14212	-2 88286	-2 63648	-2 49657
-1 10193	-2 63648	-2 46001	-2 35941

T

-2 14961	-2 12747	-2 11156	-3 99328
-2 12199	-2 10512	-3 92853	-3 83264
-2 10512	-3 91453	-3 81385	-3 73403
-3 92853	-3 81386	-3 72850	-3 65998

S (1/2 T SIGMA= 2.500)

-1 57224	-1 34419	-1 24570	-1 19105
-1 24361	-1 15263	-1 11122	-2 87619
-1 15263	-2 97431	-2 71787	-2 56997
-1 11122	-2 71787	-2 53286	-2 42541

T SIGMA= 6.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45650 BETA= 45822

R

-1 55728	-1 33145	-1 23455	-1 18112
-1 23141	-1 14212	-1 10193	-2 79293
-1 14212	-2 88287	-2 63649	-2 49657
-1 10193	-2 63649	-2 46002	-2 35942

T

-3 49630	-3 42868	-3 37935	-3 34066
-3 40989	-3 35701	-3 31800	-3 28701
-3 35701	-3 31307	-3 28035	-3 25405
-3 31800	-3 28035	-3 25207	-3 22912

S (1/2 T SIGMA= 3.000)

-1 56224	-1 33573	-1 23834	-1 18453
-1 23551	-1 14569	-1 10511	-2 82164
-1 14569	-2 91417	-2 66452	-2 52198
-1 10511	-2 66452	-2 48522	-2 38233

T SIGMA= 8.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45726 BETA= 45746

R

-1 55728	-1 33145	-1 23455	-1 18112
-1 23141	-1 14212	-1 10193	-2 79294
-1 14212	-2 88287	-2 63649	-2 49657
-1 10193	-2 63649	-2 46002	-2 35942

T

-4 56896	-4 49997	-4 44842	-4 40685
-4 47752	-4 42138	-4 37915	-4 34483
-4 42138	-4 37308	-4 33655	-4 30667
-4 37915	-4 33655	-4 30418	-4 27757

S (1/2 T SIGMA= 4.000)

-1 55785	-1 33195	-1 23500	-1 18153
-1 23189	-1 14254	-1 10231	-2 79638
-1 14254	-2 88660	-2 63985	-2 49964
-1 10231	-2 63985	-2 46306	-2 36220

T SIGMA= 10.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45735 BETA= 45737

R
 -1 55728 -1 33145 -1 23455 -1 18112
 -1 23141 -1 14212 -1 10193 -2 79294
 -1 14212 -2 88287 -2 63649 -2 49658
 -1 10193 -2 63649 -2 46002 -2 35942

T
 -5 67290 -5 59638 -5 53840 -5 49088
 -5 56930 -5 50556 -5 45710 -5 41723
 -5 50556 -5 44967 -5 40705 -5 37188
 -5 45710 -5 40705 -5 36880 -5 33715

S (1/2 T SIGMA= 5.000)
 -1 55735 -1 33151 -1 23460 -1 18117
 -1 23146 -1 14217 -1 10198 -2 79335
 -1 14217 -2 88332 -2 63690 -2 49695
 -1 10198 -2 63690 -2 46039 -2 35976

T SIGMA= 14.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45736 BETA= 45736

R
 -1 55728 -1 33145 -1 23455 -1 18112
 -1 23141 -1 14212 -1 10193 -2 79294
 -1 14212 -2 88287 -2 63649 -2 49658
 -1 10193 -2 63649 -2 46002 -2 35942

T
 -7 98538 -7 87849 -7 79662 -7 72874
 -7 83828 -7 74768 -7 67822 -7 62057
 -7 74768 -7 66709 -7 60527 -7 55393
 -7 67822 -7 60527 -7 54929 -7 50276

S (1/2 T SIGMA= 7.000)
 -1 55728 -1 33145 -1 23455 -1 18112
 -1 23141 -1 14212 -1 10193 -2 79294
 -1 14212 -2 88287 -2 63650 -2 49658
 -1 10193 -2 63650 -2 46002 -2 35943

T SIGMA= 20.00 SIGMA(S)/SIGMA= .20
 ALPHA= 45736 BETA= 45736

R
 -1 55728 -1 33145 -1 23455 -1 18112
 -1 23141 -1 14212 -1 10193 -2 79294
 -1 14212 -2 88287 -2 63649 -2 49658
 -1 10193 -2 63649 -2 46002 -2 35942

T
 -9 17922 -9 16001 -9 14526 -9 13298
 -9 15267 -9 13632 -9 12375 -9 11330
 -9 13632 -9 12171 -9 11050 -9 10117
 -9 12375 -9 11050 -9 10032 -10 91846

S (1/2 T SIGMA= 10.000)
 -1 55728 -1 33145 -1 23455 -1 18112
 -1 23141 -1 14212 -1 10193 -2 79294
 -1 14212 -2 88287 -2 63649 -2 49658
 -1 10193 -2 63649 -2 46002 -2 35942

T SIGMA= .25 SIGMA(S)/SIGMA= .30
ALPHA= -1 76243 BETA= 1 27101

R
-1 59848 -1 33551 -1 23055 -1 17514
-1 20885 -1 11889 -2 82092 -2 62496
-1 11889 -2 67921 -2 46950 -2 35761
-2 82092 -2 46950 -2 32466 -2 24733

T
57035 35517 25379 19643
34436 24394 18809 15280
24394 18677 15133 12718
18809 15133 12687 10927

S (1/2 T SIGMA= .125)
63020 38872 27685 21395
36524 25583 19630 15905
25583 19356 15603 13076
19630 15603 13011 11174

T SIGMA= .50 SIGMA(S)/SIGMA= .30
ALPHA= 14102 BETA= 1 14042

R
-1 75854 -1 43873 -1 30562 -1 23381
-1 29199 -1 17256 -1 12114 -2 93021
-1 17256 -1 10258 -2 72172 -2 55481
-1 12114 -2 72172 -2 50824 -2 39087

T
38220 25635 19024 15040
24616 18040 14180 11659
18040 14028 11484 -1 97199
14180 11484 -1 96791 -1 83721

S (1/2 T SIGMA= .250)
45805 30022 22080 17378
27536 19765 15392 12590
19765 15053 12205 10275
15392 12205 10187 -1 87630

T SIGMA= .75 SIGMA(S)/SIGMA= .30
ALPHA= 19682 BETA= 98340

R
-1 82536 -1 48451 -1 34001 -1 26120
-1 33092 -1 19924 -1 14118 -1 10899
-1 19924 -1 12086 -2 85911 -2 66426
-1 14118 -2 85911 -2 61147 -2 47311

T
26721 18747 14278 11472
17901 13432 10716 -1 88983
13432 10574 -1 87310 -1 74358
10716 -1 87310 -1 73950 -1 64212

S (1/2 T SIGMA= .375)
34974 23592 17678 14084
21210 15424 12128 -1 99882
15424 11783 -1 95901 -1 81000
12128 -1 95901 -1 80065 -1 68944

T SIGMA= 1.00 SIGMA(S)/SIGMA= .30
 ALPHA= 24418 BETA= 78239

R
 -1 85661 -1 50676 -1 35711 -1 27502
 -1 35037 -1 21309 -1 15183 -1 11759
 -1 21309 -1 13073 -2 93491 -2 72553
 -1 15183 -2 93491 -2 66974 -2 52021

T
 19107 13829 10742 -1 87436
 13155 10050 -1 81151 -1 67952
 10050 -1 79933 -1 66486 -1 56930
 -1 81151 -1 66486 -1 56561 -1 49286

S (1/2 T SIGMA= .500)
 27673 18896 14313 11494
 16659 12181 -1 96334 -1 79711
 12181 -1 93006 -1 75835 -1 64186
 -1 96334 -1 75835 -1 63259 -1 54488

T SIGMA= 1.25 SIGMA(S)/SIGMA= .30
 ALPHA= 28358 BETA= 66854

R
 -1 87214 -1 51810 -1 36600 -1 28230
 -1 36048 -1 22046 -1 15760 -1 12231
 -1 22046 -1 13612 -2 97714 -2 76008
 -1 15760 -2 97714 -2 70279 -2 54726

T
 13848 10267 -1 81021 -1 66661
 -1 97392 -1 75492 -1 61569 -1 51927
 -1 75492 -1 60560 -1 50694 -1 43619
 -1 61569 -1 50694 -1 43301 -1 37853

S (1/2 T SIGMA= .625)
 22569 15448 11762 -1 94890
 13344 -1 97538 -1 77329 -1 64158
 -1 97538 -1 74172 -1 60466 -1 51219
 -1 77329 -1 60466 -1 50329 -1 43326

T SIGMA= 1.50 SIGMA(S)/SIGMA= .30
 ALPHA= 31577 BETA= 59766

R
 -1 88011 -1 52405 -1 37073 -1 28620
 -1 36582 -1 22446 -1 16077 -1 12494
 -1 22446 -1 13911 -1 10009 -2 77970
 -1 16077 -1 10009 -2 72163 -2 56283

T
 10144 -1 76609 -1 61233 -1 50845
 -1 72511 -1 56876 -1 46786 -1 39709
 -1 56876 -1 45969 -1 38698 -1 33441
 -1 46786 -1 38698 -1 33175 -1 29088

S (1/2 T SIGMA= .750)
 18945 12901 -1 98306 -1 79465
 10909 -1 79322 -1 62863 -1 52203
 -1 79322 -1 59880 -1 48707 -1 41238
 -1 62863 -1 48707 -1 40392 -1 34716

T SIGMA= 1.75 SIGMA(S)/SIGMA= .30
 ALPHA= 34165 BETA= 55089

R

-1 88431	-1 52725	-1 37330	-1 28834
-1 36871	-1 22666	-1 16254	-1 12641
-1 22666	-1 14078	-1 10143	-2 79088
-1 16254	-1 10143	-2 73242	-2 57181

T

-1 74848	-1 57384	-1 46369	-1 38810
-1 54221	-1 42960	-1 35604	-1 30388
-1 42960	-1 34950	-1 29571	-1 25654
-1 35604	-1 29571	-1 25436	-1 22363

S (1/2 T SIGMA= .875)

16328	11011	-1 83699	-1 67644
-1 91092	-1 65626	-1 51858	-1 43029
-1 65626	-1 49028	-1 39714	-1 33563
-1 51858	-1 39714	-1 32760	-1 28081

T SIGMA= 2.00 SIGMA(S)/SIGMA= .30
 ALPHA= 36219 BETA= 51881

R

-1 88656	-1 52899	-1 37471	-1 28953
-1 37029	-1 22788	-1 16353	-1 12724
-1 22788	-1 14172	-1 10219	-2 79729
-1 16353	-1 10219	-2 73861	-2 57702

T

-1 55537	-1 43124	-1 35175	-1 29647
-1 40688	-1 32520	-1 27130	-1 23271
-1 32520	-1 26611	-1 22617	-1 19691
-1 27130	-1 22617	-1 19514	-1 17200

S (1/2 T SIGMA= 1.000)

14419	-1 96023	-1 72646	-1 58600
-1 77717	-1 55308	-1 43482	-1 35995
-1 55308	-1 40783	-1 32836	-1 27664
-1 43482	-1 32836	-1 26900	-1 22970

T SIGMA= 2.50 SIGMA(S)/SIGMA= .30
 ALPHA= 39090 BETA= 47994

R

-1 88847	-1 53039	-1 37594	-1 29057
-1 37173	-1 22894	-1 16440	-1 12797
-1 22894	-1 14255	-1 10288	-2 80310
-1 16440	-1 10288	-2 74426	-2 58179

T

-1 30972	-1 24554	-1 20326	-1 17324
-1 23113	-1 18730	-1 15791	-1 13662
-1 18730	-1 15471	-1 13253	-1 11615
-1 15791	-1 13253	-1 11502	-1 10186

S (1/2 T SIGMA= 1.250)

11982	-1 77593	-1 57921	-1 46381
-1 60286	-1 41623	-1 32231	-1 26460
-1 41623	-1 29726	-1 23541	-1 19646
-1 32231	-1 23541	-1 18945	-1 16004

T SIGMA= 3.00 SIGMA(S)/SIGMA= .30
 ALPHA= 40818 BETA= 45938

R

-1 88906	-1 53085	-1 37633	-1 29090
-1 37216	-1 22928	-1 16469	-1 12822
-1 22928	-1 14283	-1 10311	-2 80504
-1 16469	-1 10311	-2 74615	-2 58341

T

-1 17516	-1 14090	-1 11804	-1 10158
-1 13242	-1 10850	-2 92321	-2 80467
-1 10850	-2 90368	-2 77939	-2 68678
-2 92321	-2 77939	-2 67967	-2 60419

S (1/2 T SIGMA= 1.500)

10642	-1 67176	-1 49437	-1 39248
-1 50458	-1 33778	-1 25701	-1 20869
-1 33778	-1 23320	-1 18105	-1 14918
-1 25701	-1 18105	-1 14258	-1 11876

T SIGMA= 3.50 SIGMA(S)/SIGMA= .30
 ALPHA= 41841 BETA= 44806

R

-1 88924	-1 53100	-1 37646	-1 29101
-1 37230	-1 22939	-1 16478	-1 12830
-1 22939	-1 14292	-1 10318	-2 80570
-1 16478	-1 10318	-2 74679	-2 58396

T

-2 99942	-2 81362	-2 68841	-2 59727
-2 76364	-2 63158	-2 54155	-2 47498
-2 63158	-2 52972	-2 45949	-2 40675
-2 54155	-2 45949	-2 40233	-2 35879

S (1/2 T SIGMA= 1.750)

-1 98918	-1 61237	-1 44530	-1 35074
-1 44866	-1 29255	-1 21894	-1 17580
-1 29255	-1 19589	-1 14913	-1 12124
-1 21894	-1 14913	-1 11491	-2 94275

T SIGMA= 4.00 SIGMA(S)/SIGMA= .30
 ALPHA= 42443 BETA= 44168

R

-1 88930	-1 53105	-1 37650	-1 29104
-1 37234	-1 22943	-1 16481	-1 12833
-1 22943	-1 14295	-1 10321	-2 80592
-1 16481	-1 10321	-2 74701	-2 58415

T

-2 57424	-2 47223	-2 40297	-2 35205
-2 44274	-2 36911	-2 31859	-2 28091
-2 36911	-2 31143	-2 27147	-2 24123
-2 31859	-2 27147	-2 23851	-2 21327

S (1/2 T SIGMA= 2.000)

-1 94672	-1 57828	-1 41680	-1 32625
-1 41662	-1 26634	-1 19667	-1 15642
-1 26634	-1 17409	-1 13036	-1 10472
-1 19667	-1 13036	-2 98552	-2 79742

T SIGMA= 5.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43001 BETA= 43593

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37236	-1 22944	-1 16483	-1 12834
-1 22944	-1 14296	-1 10322	-2 80603
-1 16483	-1 10322	-2 74711	-2 58424

T

-2 19274	-2 16109	-2 13933	-2 12306
-2 15077	-2 12730	-2 11102	-3 98702
-2 12730	-2 10843	-3 95237	-3 85135
-2 11102	-3 95237	-3 84120	-3 75524

S (1/2 T SIGMA= 2.500)

-1 90860	-1 54718	-1 39045	-1 30337
-1 38744	-1 24217	-1 17593	-1 13821
-1 24217	-1 15380	-1 11274	-2 89116
-1 17593	-1 11274	-2 83123	-2 65976

T SIGMA= 6.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43194 BETA= 43399

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T

-3 65766	-3 55632	-3 48593	-3 43251
-3 52002	-3 44315	-3 38939	-3 34820
-3 44315	-3 38004	-3 33561	-3 30126
-3 38939	-3 33561	-3 29754	-3 26790

S (1/2 T SIGMA= 3.000)

-1 89591	-1 53664	-1 38138	-1 29539
-1 37757	-1 23388	-1 16872	-1 13182
-1 23388	-1 14676	-1 10658	-2 83616
-1 16872	-1 10658	-2 77688	-2 61104

T SIGMA= 8.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43284 BETA= 43309

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T

-4 79187	-4 67999	-4 60112	-4 54005
-4 63462	-4 54700	-4 48499	-4 43669
-4 54700	-4 47295	-4 42036	-4 37920
-4 48499	-4 42036	-4 37431	-4 33815

S (1/2 T SIGMA= 4.000)

-1 89012	-1 53176	-1 37712	-1 29160
-1 37300	-1 22999	-1 16531	-1 12878
-1 22999	-1 14344	-1 10364	-2 80983
-1 16531	-1 10364	-2 75087	-2 58763

T SIGMA= 10.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43295 BETA= 43298

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T

-5 97801	-5 84618	-5 75247	-5 67907
-5 78911	-5 68399	-5 60909	-5 55027
-5 68399	-5 59375	-5 52935	-5 47864
-5 60909	-5 52935	-5 47236	-5 42740

S (1/2 T SIGMA= 5.000)

-1 88943	-1 53116	-1 37660	-1 29113
-1 37245	-1 22951	-1 16489	-1 12840
-1 22951	-1 14302	-1 10328	-2 80652
-1 16489	-1 10328	-2 74760	-2 58468

T SIGMA= 14.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43296 BETA= 43296

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T

-6 15511	-6 13492	-6 12047	-6 10906
-6 12575	-6 10943	-7 97741	-7 88504
-6 10943	-7 95254	-7 85104	-7 77076
-7 97741	-7 85104	-7 76050	-7 68887

S (1/2 T SIGMA= 7.000)

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80605
-1 16483	-1 10322	-2 74713	-2 58426

T SIGMA= 20.00 SIGMA(S)/SIGMA= .30
 ALPHA= 43296 BETA= 43296

R

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T

-9 31682	-9 27596	-9 24667	-9 22348
-9 25717	-9 22401	-9 20024	-9 18143
-9 22401	-9 19514	-9 17444	-9 15805
-9 20024	-9 17444	-9 15594	-9 14129

S (1/2 T SIGMA= 10.000)

-1 88933	-1 53108	-1 37652	-1 29106
-1 37237	-1 22945	-1 16483	-1 12834
-1 22945	-1 14296	-1 10322	-2 80604
-1 16483	-1 10322	-2 74712	-2 58425

T SIGMA= .25 SIGMA(S)/SIGMA= .40
 ALPHA= -1 66572 BETA= 1 27041
 R
 -1 82323 -1 46180 -1 31740 -1 24114
 -1 28768 -1 16382 -1 11312 -2 86120
 -1 16382 -2 93604 -2 64707 -2 49288
 -1 11312 -2 64707 -2 44748 -2 34091
 T
 59008 36673 26186 20260
 35181 24826 19109 15510
 24826 18927 15307 12851
 19109 15307 12807 11019
 S (1/2 T SIGMA= .125)
 67240 41291 29360 22671
 38057 26464 20241 16371
 26464 19863 15954 13344
 20241 15954 13255 11360

T SIGMA= .50 SIGMA(S)/SIGMA= .40
 ALPHA= 12430 BETA= 1 13949
 R
 10589 -1 61341 -1 42754 -1 32717
 -1 40894 -1 24188 -1 16986 -1 13045
 -1 24188 -1 14389 -1 10126 -2 77852
 -1 16986 -1 10126 -2 71325 -2 54860
 T
 40507 27059 20045 15833
 25622 18658 14622 12001
 18658 14407 11753 -1 99287
 14622 11753 -1 98712 -1 85207
 S (1/2 T SIGMA= .250)
 51096 33193 24320 19105
 29711 21077 16320 13306
 21077 15845 12766 10707
 16320 12766 10584 -1 90693

T SIGMA= .75 SIGMA(S)/SIGMA= .40
 ALPHA= 17486 BETA= 97135
 R
 11624 -1 68397 -1 48043 -1 36925
 -1 46835 -1 28241 -1 20024 -1 15462
 -1 28241 -1 17153 -1 12199 -2 94343
 -1 20024 -1 12199 -2 86863 -2 67225
 T
 28913 20166 15317 12289
 18951 14103 11204 -1 92808
 14103 11001 -1 90411 -1 76783
 11204 -1 90411 -1 76199 -1 65970
 S (1/2 T SIGMA= .375)
 40537 27006 20122 15981
 23634 16927 13207 10827
 16927 12717 10261 -1 86217
 13207 10261 -1 84886 -1 72693

T SIGMA= 1.00 SIGMA(S)/SIGMA= .40
 ALPHA= 21850 BETA= 76807

R

12129	-1	71971	-1	50782	-1	39135
-1 49923	-1	30425	-1	21698	-1	16813
-1 30425	-1	18698	-1	13383	-1	10390
-1 21698	-1	13383	-2	95939	-2	74549

T

21063		15132		11711	-1	95131
14148		10703	-1	85977	-1	71767
10703	-1	84205	-1	69634	-1	59415
-1 85977	-1	69634	-1	58879	-1	51114

S (1/2 T SIGMA= .500)

33193		22329		16790		13427
19140		13746		10767	-1	88580
13746		10290	-1	83017	-1	69805
10767	-1	83017	-1	68473	-1	58569

T SIGMA= 1.25 SIGMA(S)/SIGMA= .40
 ALPHA= 25543 BETA= 65228

R

12390	-1	73863	-1	52260	-1	40341
-1 51585	-1	31629	-1	22636	-1	17579
-1 31629	-1	19572	-1	14064	-1	10946
-1 22636	-1	14064	-1	10125	-2	78884

T

15530		11414	-1	89661	-1	73574
10631	-1	81484	-1	66055	-1	55501
-1 81484	-1	64566	-1	53684	-1	45997
-1 66055	-1	53684	-1	45529	-1	39624

S (1/2 T SIGMA= .625)

27921		18800		14192		11392
15789		11311	-1	88691	-1	73080
11311	-1	84138	-1	67748	-1	56943
-1 88691	-1	67748	-1	55654	-1	47513

T SIGMA= 1.50 SIGMA(S)/SIGMA= .40
 ALPHA= 28614 BETA= 57973

R

12529	-1	74892	-1	53072	-1	41011
-1 52494	-1	32303	-1	23169	-1	18018
-1 32303	-1	20072	-1	14459	-1	11271
-1 23169	-1	14459	-1	10437	-2	81452

T

11559	-1	86422	-1	68713	-1	56873
-1 80263	-1	62182	-1	50801	-1	42931
-1 62182	-1	49580	-1	41422	-1	35623
-1 50801	-1	41422	-1	35227	-1	30729

S (1/2 T SIGMA= .750)

24088		16131		12178	-1	97884
13276	-1	94485	-1	73970	-1	60949
-1 94485	-1	69651	-1	55881	-1	46894
-1 73970	-1	55881	-1	45663	-1	38874

T SIGMA= 1.75 SIGMA(S)/SIGMA= .40
 ALPHA= 31126 BETA= 53152

R
 -1 12605 -1 75461 -1 53527 -1 41388
 -1 53001 -1 32685 -1 23474 -1 18271
 -1 32685 -1 20359 -1 14688 -1 11462
 -1 23474 -1 14688 -1 10620 -2 82974
 T
 -1 86581 -1 65641 -1 52722 -1 43963
 -1 60823 -1 47547 -1 39108 -1 33217
 -1 47547 -1 38119 -1 31983 -1 27598
 -1 39108 -1 31983 -1 27269 -1 23838
 S (1/2 T SIGMA= .875)
 21263 14110 10625 -1 85351
 11382 -1 80232 -1 62581 -1 51489
 -1 80232 -1 58477 -1 46671 -1 39059
 -1 62581 -1 46671 -1 37889 -1 32135

T SIGMA= 2.00 SIGMA(S)/SIGMA= .40
 ALPHA= 33154 BETA= 49820

R
 -1 12647 -1 75781 -1 53785 -1 41604
 -1 53287 -1 32902 -1 23649 -1 18418
 -1 32902 -1 20525 -1 14822 -1 11574
 -1 23649 -1 14822 -1 10728 -2 83877
 T
 -1 65167 -1 49986 -1 40498 -1 33989
 -1 46229 -1 36419 -1 30132 -1 25709
 -1 36419 -1 29339 -1 24710 -1 21387
 -1 30132 -1 24710 -1 21117 -1 18497
 S (1/2 T SIGMA= 1.000)
 19164 12577 -1 94283 -1 75593
 -1 99516 -1 69322 -1 53781 -1 44127
 -1 69322 -1 49863 -1 39532 -1 32961
 -1 53781 -1 39532 -1 31845 -1 26885

T SIGMA= 2.50 SIGMA(S)/SIGMA= .40
 ALPHA= 36055 BETA= 45736

R
 -1 12684 -1 76054 -1 54019 -1 41801
 -1 53552 -1 33099 -1 23810 -1 18553
 -1 33099 -1 20677 -1 14947 -1 11679
 -1 23810 -1 14947 -1 10830 -2 84735
 T
 -1 37320 -1 29172 -1 23958 -1 20315
 -1 26897 -1 21450 -1 17915 -1 15403
 -1 21450 -1 17415 -1 14765 -1 12852
 -1 17915 -1 14765 -1 12676 -1 11145
 S (1/2 T SIGMA= 1.250)
 16416 10523 -1 77977 -1 62116
 -1 80449 -1 54548 -1 41725 -1 33956
 -1 54548 -1 38092 -1 29712 -1 24531
 -1 41725 -1 29712 -1 23506 -1 19618

T SIGMA= 3.00 SIGMA(S)/SIGMA= .40
 ALPHA= 37853 BETA= 43538

		R		
12696	-1	76148	-1	54096
-1 53636	-1	33165	-1	23865
-1 33165	-1	20730	-1	14990
-1 23865	-1	14990	-1	10865
		T		
-1 21629	-1	17130	-1	14220
-1 15761	-1	12691	-1	10685
-1 12691	-1	10374	-2	88454
-1 10685	-2	88454	-2	76220
		S	(1/2 T SIGMA= 1.500)	
14859	-1	93278	-1	68317
-1 69398	-1	45856	-1	34550
-1 45856	-1	31103	-1	23835
-1 34550	-1	23835	-1	18487

T SIGMA= 3.50 SIGMA(S)/SIGMA= .40
 ALPHA= 38947 BETA= 42306

		R		
12700	-1	76180	-1	54123
-1 53665	-1	33188	-1	23884
-1 33188	-1	20748	-1	15005
-1 23884	-1	15005	-1	10878
		T		
-1 12629	-1	10108	-2	84656
-2 92846	-2	75361	-2	63877
-2 75361	-2	61955	-2	53080
-2 63878	-2	53080	-2	45882
		S	(1/2 T SIGMA= 1.750)	
13962	-1	86287	-1	62588
-1 62950	-1	40724	-1	30272
-1 40724	-1	26943	-1	20313
-1 30272	-1	20313	-1	15466

T SIGMA= 4.00 SIGMA(S)/SIGMA= .40
 ALPHA= 39606 BETA= 41599

		R		
12701	-1	76191	-1	54132
-1 53675	-1	33196	-1	23891
-1 33196	-1	20754	-1	15010
-1 23891	-1	15010	-1	10882
		T		
-2 74158	-2	59880	-2	50529
-2 54929	-2	44887	-2	38264
-2 44887	-2	37081	-2	31898
-2 38264	-2	31898	-2	27645
		S	(1/2 T SIGMA= 2.000)	
13443	-1	82179	-1	59185
-1 59168	-1	37685	-1	27717
-1 37685	-1	24462	-1	18200
-1 27717	-1	18200	-1	13647

T SIGMA= 5.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40237 BETA= 40945

R

12702	-1	76196	-1	54136	-1	41901
-1 53679	-1	33200	-1	23894	-1	18625
-1 33200	-1	20757	-1	15013	-1	11735
-1 23894	-1	15013	-1	10885	-2	85203

T

-2 25917	-2	21219	-2	18117	-2	15858
-2 19423	-2	16042	-2	13797	-2	12148
-2 16042	-2	13353	-2	11559	-2	10229
-2 13797	-2	11559	-2	10058	-3	89380

S (1/2 T SIGMA= 2.500)

12961	-1	78318	-1	55948	-1	43486
-1 55622	-1	34804	-1	25273	-1	19840
-1 34804	-1	22092	-1	16169	-1	12758
-1 25273	-1	16169	-1	11890	-2	94141

T SIGMA= 6.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40462 BETA= 40716

R

12702	-1	76196	-1	54137	-1	41901
-1 53680	-1	33200	-1	23894	-1	18625
-1 33200	-1	20757	-1	15013	-1	11736
-1 23894	-1	15013	-1	10885	-2	85206

T

-3 91756	-3	75887	-3	65341	-3	57582
-3 69356	-3	57723	-3	49960	-3	44209
-3 57723	-3	48311	-3	42004	-3	37302
-3 49960	-3	42004	-3	36654	-3	32644

S (1/2 T SIGMA= 3.000)

12793	-1	76955	-1	54790	-1	42477
-1 54374	-1	33777	-1	24394	-1	19067
-1 33777	-1	21241	-1	15433	-1	12109
-1 24394	-1	15433	-1	11251	-2	88470

T SIGMA= 8.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40573 BETA= 40606

R

12702	-1	76196	-1	54137	-1	41901
-1 53680	-1	33200	-1	23894	-1	18625
-1 33200	-1	20757	-1	15013	-1	11736
-1 23894	-1	15013	-1	10885	-2	85206

T

-3 11803	-4	98844	-4	85981	-4	76385
-4 90166	-4	75747	-4	66058	-4	58803
-4 75747	-4	63810	-4	55771	-4	49730
-4 66058	-4	55771	-4	48831	-4	43602

S (1/2 T SIGMA= 4.000)

12713	-1	76295	-1	54223	-1	41978
-1 53770	-1	33276	-1	23960	-1	18684
-1 33276	-1	20821	-1	15069	-1	11785
-1 23960	-1	15069	-1	10934	-2	85642

T SIGMA= 10.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40587 BETA= 40591

		R		
12702	-1	76196	-1	54137
-1 53680	-1	33200	-1	23894
-1 33200	-1	20758	-1	15013
-1 23894	-1	15013	-1	10885
		T		
-4 15478	-4	13043	-4	11403
-4 11887	-4	10032	-5	87809
-4 10032	-5	84776	-5	74283
-5 87809	-5	74283	-5	65143
		S	(1/2 T SIGMA= 5.000)	
12703	-1	76209	-1	54148
-1 53692	-1	33210	-1	23903
-1 33210	-1	20766	-1	15021
-1 23903	-1	15021	-1	10891

T SIGMA= 14.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40589 BETA= 40589

		R		
12702	-1	76196	-1	54137
-1 53680	-1	33200	-1	23894
-1 33200	-1	20758	-1	15013
-1 23894	-1	15013	-1	10885
		T		
-6 27447	-6	23231	-6	20381
-6 21157	-6	17914	-6	15721
-6 17914	-6	15172	-6	13318
-6 15721	-6	13318	-6	11692
		S	(1/2 T SIGMA= 7.000)	
12702	-1	76197	-1	54137
-1 53680	-1	33200	-1	23894
-1 33200	-1	20758	-1	15013
-1 23894	-1	15013	-1	10885

T SIGMA= 20.00 SIGMA(S)/SIGMA= .40
 ALPHA= 40589 BETA= 40589

		R		
12702	-1	76196	-1	54137
-1 53680	-1	33200	-1	23894
-1 33200	-1	20758	-1	15013
-1 23894	-1	15013	-1	10885
		T		
-9 65945	-9	55880	-9	49070
-9 50884	-9	43120	-9	37866
-9 43120	-9	36541	-9	32090
-9 37866	-9	32090	-9	28181
		S	(1/2 T SIGMA= 10.000)	
12702	-1	76196	-1	54137
-1 53680	-1	33200	-1	23894
-1 33200	-1	20758	-1	15013
-1 23894	-1	15013	-1	10885

T SIGMA= .25 SIGMA(S)/SIGMA= .50
 ALPHA= -1 56533 BETA= 1 26981

R
 10628 -1 59659 -1 41012 -1 31161
 -1 37192 -1 21185 -1 14630 -1 11139
 -1 21185 -1 12108 -2 83704 -2 63759
 -1 14630 -2 83704 -2 57888 -2 44102

T
 61124 37913 27050 20921
 35979 25289 19431 15756
 25289 19195 15493 12993
 19431 15493 12936 11117

S (1/2 T SIGMA= .125)
 71752 43878 31151 24037
 39698 27408 20894 16869
 27408 20405 16330 13631
 20894 16330 13515 11558

T SIGMA= .50 SIGMA(S)/SIGMA= .50
 ALPHA= 10660 BETA= 1 13853

R
 13896 -1 80627 -1 56230 -1 43042
 -1 53845 -1 31878 -1 22394 -1 17201
 -1 31878 -1 18976 -1 13358 -1 10271
 -1 22394 -1 13358 -2 94113 -2 72396

T
 43074 28653 21188 16720
 26747 19350 15115 12383
 19350 14830 12055 10162
 15115 12055 10086 -1 86866

S (1/2 T SIGMA= .250)
 56970 36716 26811 21024
 32132 22538 17354 14103
 22538 16727 13391 11189
 17354 13391 11027 -1 94105

T SIGMA= .75 SIGMA(S)/SIGMA= .50
 ALPHA= 15126 BETA= 95887

R
 15412 -1 90914 -1 63924 -1 49156
 -1 62421 -1 37699 -1 26748 -1 20662
 -1 37699 -1 22928 -1 16314 -1 12621
 -1 26748 -1 16314 -1 11623 -2 89973

T
 31466 21814 16522 13235
 20169 14880 11769 -1 97230
 14880 11495 -1 93994 -1 79583
 11769 -1 93993 -1 78796 -1 67999

S (1/2 T SIGMA= .375)
 46879 30906 22915 18150
 26411 18650 14444 11789
 18650 13788 11031 -1 92204
 14444 11031 -1 90419 -1 76996

T SIGMA= 1.00 SIGMA(S)/SIGMA= .50
 ALPHA= 19052 BETA= 75311

R
 16190 -1 96375 -1 68095 -1 52516
 -1 67083 -1 40974 -1 29250 -1 22677
 -1 40974 -1 25229 -1 18072 -1 14037
 -1 29250 -1 18072 -1 12966 -1 10079

T
 23416 16693 12871 10432
 15335 11482 -1 91726 -1 76307
 11482 -1 89289 -1 73378 -1 62368
 -1 91726 -1 73378 -1 61632 -1 53284

S (1/2 T SIGMA= .500)
 39606 26331 19680 15683
 22044 15579 12098 -1 98984
 15579 11452 -1 91451 -1 76405
 12098 -1 91451 -1 74598 -1 63363

T SIGMA= 1.25 SIGMA(S)/SIGMA= .50
 ALPHA= 22440 BETA= 63516

R
 16609 -1 99393 -1 70441 -1 54426
 -1 69696 -1 42853 -1 30708 -1 23864
 -1 42853 -1 26582 -1 19122 -1 14892
 -1 30708 -1 19122 -1 13781 -1 10743

T
 17613 12825 10028 -1 82054
 11726 -1 88823 -1 71538 -1 59866
 -1 88823 -1 69459 -1 57331 -1 48895
 -1 71538 -1 57331 -1 48243 -1 41779

S (1/2 T SIGMA= .625)
 34223 22765 17072 13648
 18695 13168 10225 -1 89730
 13168 -1 96040 -1 76453 -1 63787
 10225 -1 76453 -1 62024 -1 52522

T SIGMA= 1.50 SIGMA(S)/SIGMA= .50
 ALPHA= 25314 BETA= 56072

R
 16842 10110 -1 71782 -1 55528
 -1 71184 -1 43944 -1 31566 -1 24569
 -1 43944 -1 27382 -1 19752 -1 15409
 -1 31566 -1 19752 -1 14275 -1 11149

T
 13358 -1 98821 -1 78132 -1 64450
 -1 90028 -1 68838 -1 55827 -1 46958
 -1 68838 -1 54094 -1 44821 -1 38342
 -1 55827 -1 44821 -1 37782 -1 32771

S (1/2 T SIGMA= .750)
 30200 19992 14991 11998
 16121 11278 -1 87393 -1 71527
 11278 -1 81476 -1 64573 -1 53751
 -1 87393 -1 64573 -1 52057 -1 43920

T SIGMA= 1.75 SIGMA(S)/SIGMA= .50
 ALPHA= 27713 BETA= 51085

R

16974	10208	-1 72562	-1 56173
-1 72044	-1 44585	-1 32074	-1 24990
-1 44585	-1 27859	-1 20130	-1 15722
-1 32074	-1 20130	-1 14576	-1 11398

T

10186	-1 76320	-1 60906	-1 50586
-1 69333	-1 53431	-1 43590	-1 36830
-1 53431	-1 42166	-1 35057	-1 30071
-1 43590	-1 35057	-1 29600	-1 25712

S (1/2 T SIGMA= .875)

27160	17840	13347	10676
14138	-1 98016	-1 75664	-1 61819
-1 98016	-1 70025	-1 55187	-1 45793
-1 75664	-1 55187	-1 44176	-1 37109

T SIGMA= 2.00 SIGMA(S)/SIGMA= .50
 ALPHA= 29689 BETA= 47607

R

17050	10265	-1 73019	-1 56554
-1 72546	-1 44963	-1 32377	-1 25242
-1 44963	-1 28144	-1 20358	-1 15912
-1 32377	-1 20358	-1 14759	-1 11550

T

-1 77992	-1 59056	-1 47503	-1 39688
-1 53525	-1 41525	-1 34051	-1 28885
-1 41525	-1 32894	-1 27431	-1 23587
-1 34051	-1 27431	-1 23196	-1 20177

S (1/2 T SIGMA= 1.000)

24849	16171	12052	-1 96241
12607	-1 86488	-1 66428	-1 54127
-1 86488	-1 61037	-1 47789	-1 39500
-1 66428	-1 47789	-1 37955	-1 31727

T SIGMA= 2.50 SIGMA(S)/SIGMA= .50
 ALPHA= 32598 BETA= 43286

R

17120	10317	-1 73454	-1 56917
-1 73026	-1 45319	-1 32667	-1 25484
-1 45319	-1 28417	-1 20580	-1 16098
-1 32667	-1 20580	-1 14938	-1 11700

T

-1 46133	-1 35526	-1 28929	-1 24395
-1 32081	-1 25150	-1 20792	-1 17755
-1 25150	-1 20043	-1 16803	-1 14514
-1 20792	-1 16803	-1 14253	-1 12430

S (1/2 T SIGMA= 1.250)

21733	13870	10238	-1 81312
10511	-1 70470	-1 53459	-1 43240
-1 70470	-1 48460	-1 37382	-1 30612
-1 53459	-1 37382	-1 29191	-1 24130

T SIGMA= 3.00 SIGMA(S)/SIGMA= .50
 ALPHA= 34467 BETA= 40912

		R		
17144	10336	-1	73607	-1 57046
-1 73192	-1 45448	-1	32772	-1 25573
-1 45448	-1 28516	-1	20661	-1 16167
-1 32772	-1 20661	-1	15005	-1 11757
		T		
-1 27559	-1 21468	-1	17647	-1 14998
-1 19338	-1 15283	-1	12721	-1 10924
-1 15283	-1 12243	-1	10309	-2 89377
-1 12721	-1 10309	-2	87666	-2 76606
		S	(1/2 T SIGMA= 1.500)	
19900	12483	-1	91254	-1 72044
-1 92530	-1 60731	-1	45493	-1 36497
-1 60731	-1 40760	-1	30971	-1 25104
-1 45493	-1 30971	-1	23771	-1 19417

T SIGMA= 3.50 SIGMA(S)/SIGMA= .50
 ALPHA= 35644 BETA= 39552

		R		
17152	10343	-1	73662	-1 57094
-1 73251	-1 45494	-1	32810	-1 25606
-1 45494	-1 28553	-1	20691	-1 16192
-1 32810	-1 20691	-1	15029	-1 11778
		T		
-1 16562	-1 13018	-1	10784	-2 92236
-1 11704	-2 93108	-2	77937	-2 67236
-2 93108	-2 74914	-2	63316	-2 55058
-2 77937	-2 63316	-2	53952	-2 47224
		S	(1/2 T SIGMA= 1.750)	
18809	11645	-1	84446	-1 66317
-1 84955	-1 54805	-1	40604	-1 32330
-1 54805	-1 36044	-1	27023	-1 21698
-1 40604	-1 27023	-1	20424	-1 16500

T SIGMA= 4.00 SIGMA(S)/SIGMA= .50
 ALPHA= 36375 BETA= 38753

		R		
17156	10345	-1	73682	-1 57111
-1 73273	-1 45511	-1	32824	-1 25618
-1 45511	-1 28566	-1	20702	-1 16202
-1 32824	-1 20702	-1	15039	-1 11786
		T		
-2 99976	-2 79169	-2	66003	-2 56751
-2 71064	-2 56844	-2	47805	-2 41400
-2 56844	-2 45903	-2	38917	-2 33926
-2 47805	-2 38917	-2	33219	-2 29117
		S	(1/2 T SIGMA= 2.000)	
18155	11137	-1	80283	-1 62786
-1 80379	-1 51196	-1	37605	-1 29758
-1 51196	-1 33157	-1	24594	-1 19594
-1 37605	-1 24594	-1	18360	-1 14697

T SIGMA= 5.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37104 BETA= 37990

R

17157	10346	-1 73693	-1 57120
-1 73284	-1 45520	-1 32831	-1 25624
-1 45520	-1 28573	-1 20708	-1 16207
-1 32831	-1 20708	-1 15043	-1 11790

T

-2 36806	-2 29479	-2 24818	-2 21512
-2 26397	-2 21294	-2 18037	-2 15712
-2 21294	-2 17292	-2 14730	-2 12890
-2 18037	-2 14730	-2 12607	-2 11073

S (1/2 T SIGMA= 2.500)

17525	10641	-1 76174	-1 59271
-1 75923	-1 47649	-1 34635	-1 27195
-1 47649	-1 30302	-1 22181	-1 17496
-1 34635	-1 22181	-1 16304	-1 12897

T SIGMA= 6.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37378 BETA= 37711

R

17157	10347	-1 73694	-1 57121
-1 73285	-1 45521	-1 32832	-1 25625
-1 45521	-1 28574	-1 20709	-1 16207
-1 32832	-1 20709	-1 15044	-1 11790

T

-2 13680	-2 11045	-3 93629	-3 81611
-3 98741	-3 80127	-3 68212	-3 59661
-3 80127	-3 65325	-3 55829	-3 48983
-3 68212	-3 55829	-3 47868	-3 42107

S (1/2 T SIGMA= 3.000)

17294	10457	-1 74630	-1 57937
-1 74273	-1 46322	-1 33514	-1 26222
-1 46322	-1 29227	-1 21267	-1 16697
-1 33514	-1 21267	-1 15523	-1 12211

T SIGMA= 8.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37521 BETA= 37568

R

17157	10347	-1 73694	-1 57121
-1 73285	-1 45521	-1 32833	-1 25625
-1 45521	-1 28574	-1 20709	-1 16208
-1 32833	-1 20709	-1 15044	-1 11790

T

-3 19251	-3 15694	-3 13412	-3 11767
-3 14002	-3 11443	-4 97985	-4 86107
-3 11443	-4 93721	-4 80404	-4 70761
-4 97985	-4 80404	-4 69085	-4 60874

S (1/2 T SIGMA= 4.000)

17177	10362	-1 73828	-1 57239
-1 73425	-1 45636	-1 32930	-1 25711
-1 45636	-1 28668	-1 20789	-1 16278
-1 32930	-1 20789	-1 15113	-1 11851

T SIGMA= 10.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37541 BETA= 37548

	17157	10347	-1 73694	-1 57121
-1	73285	-1 45521	-1 32833	-1 25625
-1	45521	-1 28574	-1 20709	-1 16208
-1	32833	-1 20709	-1 15044	-1 11790
-4	27449	-4 22482	-4 19287	-4 16974
-4	20038	-4 16431	-4 14110	-4 12427
-4	16431	-4 13488	-4 11592	-4 10216
-4	14110	-4 11592	-5 99702	-5 87920
	17160	10349	-1 73714	-1 57138
-1	73305	-1 45538	-1 32847	-1 25638
-1	45538	-1 28588	-1 20721	-1 16218
-1	32847	-1 20721	-1 15054	-1 11799

T SIGMA= 14.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37544 BETA= 37544

	17157	10347	-1 73694	-1 57121
-1	73285	-1 45521	-1 32833	-1 25625
-1	45521	-1 28574	-1 20709	-1 16208
-1	32833	-1 20709	-1 15044	-1 11790
-6	57031	-6 46862	-6 40310	-6 35550
-6	41740	-6 34307	-6 29517	-6 26035
-6	34307	-6 28204	-6 24270	-6 21411
-6	29516	-6 24270	-6 20889	-6 18430
	17157	10347	-1 73695	-1 57121
-1	73286	-1 45522	-1 32833	-1 25626
-1	45522	-1 28575	-1 20709	-1 16208
-1	32833	-1 20709	-1 15044	-1 11791

T SIGMA= 20.00 SIGMA(S)/SIGMA= .50
 ALPHA= 37544 BETA= 37544

	17157	10347	-1 73694	-1 57121
-1	73285	-1 45521	-1 32833	-1 25625
-1	45521	-1 28574	-1 20709	-1 16208
-1	32833	-1 20709	-1 15044	-1 11790
-8	17276	-8 14208	-8 12230	-8 10791
-8	12653	-8 10406	-9 89570	-9 79037
-8	10406	-9 85577	-9 73665	-9 65003
-9	89570	-9 73665	-9 63412	-9 55957
	17157	10347	-1 73694	-1 57121
-1	73285	-1 45521	-1 32833	-1 25625
-1	45521	-1 28574	-1 20709	-1 16208
-1	32833	-1 20709	-1 15044	-1 11790

T SIGMA= .25 SIGMA(S)/SIGMA= .60
 ALPHA= -1 46106 BETA= 1 26920

R
 13188 -1 74079 -1 50936 -1 38705
 -1 46216 -1 26334 -1 18187 -1 13848
 -1 26334 -1 15053 -1 10408 -2 79280
 -1 18187 -1 10408 -2 71982 -2 54841

T
 63399 39244 27978 21631
 36837 25787 19777 16019
 25787 19482 15693 13145
 19777 15693 13075 11223

S (1/2 T SIGMA= .125)
 76587 46652 33072 25501
 41459 28420 21596 17404
 28420 20988 16734 13938
 21596 16734 13795 11772

T SIGMA= .50 SIGMA(S)/SIGMA= .60
 ALPHA= -1 87856 BETA= 1 13755

R
 17560 10206 -1 71218 -1 54531
 -1 68280 -1 40462 -1 28434 -1 21845
 -1 40462 -1 24103 -1 16972 -1 13052
 -1 28434 -1 16972 -1 11960 -2 92016

T
 45973 30451 22475 17719
 28015 20128 15670 12812
 20128 15306 12394 10424
 15670 12394 10327 -1 88729

S (1/2 T SIGMA= .250)
 63533 40656 29597 23172
 34843 24174 18513 14997
 24174 17716 14091 11729
 18513 14091 11523 -1 97931

T SIGMA= .75 SIGMA(S)/SIGMA= .60
 ALPHA= 12582 BETA= 94592

R
 19715 11660 -1 82074 -1 63148
 -1 80286 -1 48569 -1 34485 -1 26648
 -1 48569 -1 29579 -1 21060 -1 16297
 -1 34485 -1 21060 -1 15011 -1 11623

T
 34472 23749 17935 14343
 21596 15790 12430 10240
 15790 12072 -1 98177 -1 82852
 12430 -1 98177 -1 81826 -1 70366

S (1/2 T SIGMA= .375)
 54187 35409 26142 20657
 29625 20647 15878 12904
 20647 15030 11924 -1 99148
 15878 11924 -1 96838 -1 81989

T SIGMA= 1.00 SIGMA(S)/SIGMA= .60
 ALPHA= 15988 BETA= 73746

		R		
20882		12474	-1 88271	-1 68130
-1 87152	-1 53360		-1 38132	-1 29580
-1 53360	-1 32922		-1 23605	-1 18343
-1 38132	-1 23605		-1 16949	-1 13181
		T		
26290	18592		14278	11546
16777	12425	-1 98677	-1 81792	
12425	-1 95433	-1 77897	-1 65929	
-1 98677	-1 77897	-1 64953	-1 55899	
		S (1/2 T SIGMA= .500)		
47172	31067	23105	18359	
25492	17761	13681	11137	
17761	12836	10150	-1 84272	
13681	10150	-1 81902	-1 69081	

T SIGMA= 1.25 SIGMA(S)/SIGMA= .60
 ALPHA= 18994 BETA= 61709

		R		
21545	12947	-1 91929	-1 71101	
-1 91188	-1 56238	-1 40356	-1 31386	
-1 56238	-1 34977	-1 25192	-1 19632	
-1 40356	-1 25192	-1 18176	-1 14178	
		T		
20244	14599	11358	-1 92662	
13099	-1 97989	-1 78375	-1 65301	
-1 97989	-1 75553	-1 61866	-1 52495	
-1 78375	-1 61866	-1 51614	-1 44454	
		S (1/2 T SIGMA= .625)		
41789	27546	20551	16376	
22217	15423	11873	-1 96687	
15423	11053	-1 87058	-1 72128	
11873	-1 87058	-1 69790	-1 58631	

T SIGMA= 1.50 SIGMA(S)/SIGMA= .60
 ALPHA= 21603 BETA= 54050

		R		
21931	13228	-1 94120	-1 72894	
-1 93595	-1 57986	-1 41723	-1 32505	
-1 57986	-1 36246	-1 26185	-1 20445	
-1 41723	-1 26185	-1 18952	-1 14813	
		T		
15700	11487	-1 90284	-1 74205	
10263	-1 77392	-1 62270	-1 52113	
-1 77392	-1 59875	-1 49165	-1 41812	
-1 62270	-1 49165	-1 41042	-1 35373	
		S (1/2 T SIGMA= .750)		
37631	24714	18440	14710	
19623	13538	10399	-1 84618	
13538	-1 96121	-1 75349	-1 62257	
10399	-1 75349	-1 59994	-1 50186	

T SIGMA= 1.75 SIGMA(S)/SIGMA= .60
 ALPHA= 23835 BETA= 48871

R

22160	13396	-1 95451	-1 73991
-1 95050	-1 59056	-1 42567	-1 33201
-1 59056	-1 37033	-1 26806	-1 20957
-1 42567	-1 26806	-1 19442	-1 15217

T

12233	-1 90531	-1 71757	-1 59345
-1 80619	-1 61195	-1 49486	-1 41574
-1 61195	-1 47485	-1 39087	-1 33308
-1 49486	-1 39087	-1 32649	-1 28159

S (1/2 T SIGMA= .875)

34393	22449	16721	13334
17567	12025	-1 92053	-1 74775
12025	-1 84518	-1 65893	-1 54265
-1 92053	-1 65893	-1 52091	-1 43376

T SIGMA= 2.00 SIGMA(S)/SIGMA= .60
 ALPHA= 25717 BETA= 45221

R

22298	13499	-1 96265	-1 74666
-1 95936	-1 59715	-1 43091	-1 33636
-1 59715	-1 37523	-1 27195	-1 21280
-1 43091	-1 27195	-1 19752	-1 15474

T

-1 95647	-1 71446	-1 57030	-1 47416
-1 63453	-1 48433	-1 39335	-1 33157
-1 48433	-1 37679	-1 31083	-1 26535
-1 39335	-1 31083	-1 25979	-1 22421

S (1/2 T SIGMA= 1.000)

31863	20643	15329	12208
15939	10815	-1 82426	-1 66792
10815	-1 75202	-1 58278	-1 47815
-1 82426	-1 58278	-1 45731	-1 37895

T SIGMA= 2.50 SIGMA(S)/SIGMA= .60
 ALPHA= 28586 BETA= 40613

R

22433	13598	-1 97082	-1 75346
-1 96823	-1 60372	-1 43619	-1 34076
-1 60372	-1 38019	-1 27594	-1 21612
-1 43619	-1 27594	-1 20071	-1 15741

T

-1 58888	-1 44638	-1 36018	-1 30193
-1 39478	-1 30393	-1 24851	-1 21064
-1 30393	-1 23743	-1 19660	-1 16840
-1 24851	-1 19660	-1 16456	-1 14221

S (1/2 T SIGMA= 1.250)

28321	18062	13310	10554
13630	-1 90765	-1 68470	-1 55140
-1 90765	-1 61762	-1 47254	-1 38452
-1 68470	-1 47254	-1 36528	-1 29962

T SIGMA= 3.00 SIGMA(S)/SIGMA= .60
 ALPHA= 30517 BETA= 38017

R

22483	13637	-1 97393	-1 75608
-1 97158	-1 60627	-1 43826	-1 34250
-1 60627	-1 38214	-1 27751	-1 21745
-1 43826	-1 27751	-1 20199	-1 15848

T

-1 36543	-1 27971	-1 22753	-1 19201
-1 24669	-1 19114	-1 15715	-1 13381
-1 19114	-1 14986	-1 12447	-1 10689
-1 15715	-1 12447	-1 10431	-2 90229

S (1/2 T SIGMA= 1.500)

26137	16434	12015	-1 94809
12183	-1 79741	-1 59541	-1 47630
-1 79741	-1 53199	-1 40199	-1 32434
-1 59541	-1 40199	-1 30630	-1 24871

T SIGMA= 3.50 SIGMA(S)/SIGMA= .60
 ALPHA= 31786 BETA= 36488

R

22502	13652	-1 97515	-1 75711
-1 97288	-1 60727	-1 43907	-1 34318
-1 60727	-1 38290	-1 27813	-1 21797
-1 43907	-1 27813	-1 20250	-1 15891

T

-1 22780	-1 17566	-1 14381	-1 12201
-1 15460	-1 12040	-2 99431	-2 84975
-1 12040	-2 94675	-2 78841	-2 67849
-2 99431	-2 78841	-2 66131	-2 57249

S (1/2 T SIGMA= 1.750)

24780	15408	11190	-1 87912
11275	-1 72767	-1 53850	-1 42816
-1 72767	-1 47757	-1 35698	-1 28582
-1 53850	-1 35698	-1 26863	-1 21616

T SIGMA= 4.00 SIGMA(S)/SIGMA= .60
 ALPHA= 32608 BETA= 35564

R

22510	13657	-1 97562	-1 75751
-1 97338	-1 60766	-1 43939	-1 34346
-1 60766	-1 38320	-1 27838	-1 21818
-1 43939	-1 27838	-1 20270	-1 15908

T

-1 14248	-1 11052	-2 90953	-2 77502
-2 97111	-2 75943	-2 62941	-2 53952
-2 75943	-2 59859	-2 49953	-2 43063
-2 62941	-2 49953	-2 41933	-2 36325

S (1/2 T SIGMA= 2.000)

23935	14763	10666	-1 83501
10705	-1 68360	-1 50233	-1 39741
-1 68360	-1 44306	-1 32833	-1 26125
-1 50233	-1 32833	-1 24463	-1 19541

T SIGMA= 5.00 SIGMA(S)/SIGMA= .60
 ALPHA= 33470 BETA= 34645

R

22514	13661	-1 97588	-1 75774
-1 97366	-1 60787	-1 43957	-1 34361
-1 60787	-1 38337	-1 27852	-1 21830
-1 43957	-1 27852	-1 20281	-1 15918

T

-2 56142	-2 43935	-2 36435	-2 31246
-2 38509	-2 30301	-2 25249	-2 21740
-2 30301	-2 23970	-2 20066	-2 17343
-2 25249	-2 20066	-2 16864	-2 14623

S (1/2 T SIGMA= 2.500)

23075	14100	10123	-1 78898
10122	-1 63817	-1 46481	-1 36535
-1 63817	-1 40734	-1 29859	-1 23564
-1 46481	-1 29859	-1 21968	-1 17380

T SIGMA= 6.00 SIGMA(S)/SIGMA= .60
 ALPHA= 33819 BETA= 34288

R

22515	13661	-1 97593	-1 75777
-1 97370	-1 60791	-1 43959	-1 34363
-1 60791	-1 38339	-1 27854	-1 21832
-1 43959	-1 27854	-1 20283	-1 15919

T

-2 22266	-2 17528	-2 14611	-2 12585
-2 15338	-2 12120	-2 10135	-3 87529
-2 12120	-3 96109	-3 80625	-3 69804
-2 10135	-3 80625	-3 67815	-3 58840

S (1/2 T SIGMA= 3.000)

22737	13836	-1 99054	-1 77036
-1 98904	-1 62003	-1 44973	-1 35238
-1 62003	-1 39301	-1 28660	-1 22530
-1 44973	-1 28660	-1 20961	-1 16508

T SIGMA= 8.00 SIGMA(S)/SIGMA= .60
 ALPHA= 34015 BETA= 34090

R

22515	13661	-1 97593	-1 75778
-1 97371	-1 60791	-1 43960	-1 34364
-1 60791	-1 38340	-1 27855	-1 21832
-1 43960	-1 27855	-1 20283	-1 15920

T

-3 35434	-3 28084	-3 23548	-3 20379
-3 24529	-3 19474	-3 16352	-3 14169
-3 19474	-3 15486	-3 13021	-3 11295
-3 16352	-3 13021	-3 10962	-4 95183

S (1/2 T SIGMA= 4.000)

22550	13689	-1 97829	-1 75982
-1 97616	-1 60986	-1 44123	-1 34505
-1 60986	-1 38495	-1 27985	-1 21945
-1 44123	-1 27985	-1 20393	-1 16015

T SIGMA= 10.00 SIGMA(S)/SIGMA= .60
 ALPHA= 34047 BETA= 34059

R

22515	13661	-1 97593	-1 75778
-1 97371	-1 60791	-1 43960	-1 34364
-1 60791	-1 38340	-1 27855	-1 21832
-1 43960	-1 27855	-1 20283	-1 15920

T

-4 56825	-4 45176	-4 37979	-4 32939
-4 39424	-4 31366	-4 26386	-4 22897
-4 31366	-4 24973	-4 21021	-4 18251
-4 26386	-4 21021	-4 17704	-4 15377

S (1/2 T SIGMA= 5.000)

22520	13666	-1 97631	-1 75811
-1 97410	-1 60823	-1 43986	-1 34386
-1 60823	-1 38365	-1 27076	-1 21851
-1 43986	-1 27876	-1 20301	-1 15935

T SIGMA= 14.00 SIGMA(S)/SIGMA= .60
 ALPHA= 34052 BETA= 34053

R

22515	13661	-1 97593	-1 75778
-1 97371	-1 60791	-1 43960	-1 34364
-1 60791	-1 38340	-1 27855	-1 21832
-1 43960	-1 27855	-1 20283	-1 15920

T

-5 14813	-5 11800	-6 99365	-6 86298
-5 10292	-6 81994	-6 69057	-6 59982
-6 81994	-6 65334	-6 55032	-6 47805
-6 69057	-6 55032	-6 46360	-6 40275

S (1/2 T SIGMA= 7.000)

22515	13661	-1 97594	-1 75779
-1 97372	-1 60792	-1 43961	-1 34364
-1 60792	-1 38341	-1 27855	-1 21833
-1 43961	-1 27855	-1 20284	-1 15920

T SIGMA= 20.00 SIGMA(S)/SIGMA= .60
 ALPHA= 34053 BETA= 34053

R

22515	13661	-1 97593	-1 75778
-1 97371	-1 60791	-1 43960	-1 34364
-1 60791	-1 38340	-1 27855	-1 21832
-1 43960	-1 27855	-1 20283	-1 15920

T

-8 62716	-8 49981	-8 42106	-8 36580
-8 43588	-8 34738	-8 29265	-8 25424
-8 34738	-8 27684	-8 23323	-8 20262
-8 29265	-8 23323	-8 19649	-8 17070

S (1/2 T SIGMA= 10.000)

22515	13661	-1 97593	-1 75778
-1 97371	-1 60791	-1 43960	-1 34364
-1 60791	-1 38340	-1 27855	-1 21832
-1 43960	-1 27855	-1 20284	-1 15920

T SIGMA= .25 SIGMA(S)/SIGMA= .70
 ALPHA= -1 35265 BETA= 1 26858

R
 15931 -1 89548 -1 61585 -1 46801
 -1 55909 -1 31867 -1 22011 -1 16759
 -1 31867 -1 18220 -1 12598 -2 95968
 -1 22011 -1 12598 -2 87137 -2 66389

T
 65852 40678 28978 22395
 37761 26322 20149 16303
 26322 19792 15908 13309
 20149 15908 13224 11337

S (1/2 T SIGMA= .125)
 81783 49633 35136 27075
 43352 29509 22350 17979
 29509 21614 17168 14269
 22350 17168 14096 12001

T SIGMA= .50 SIGMA(S)/SIGMA= .70
 ALPHA= -1 67947 BETA= 1 13654

R
 21649 12604 -1 88010 -1 67409
 -1 84483 -1 50112 -1 35228 -1 27069
 -1 50112 -1 29875 -1 21042 -1 16184
 -1 35228 -1 21042 -1 14832 -1 11412

T
 49270 32491 23935 18850
 29453 21010 16298 13298
 21010 15845 12777 10721
 16298 12777 10600 -1 90838

S (1/2 T SIGMA= .250)
 70919 45095 32736 25591
 37901 26021 19821 16005
 26021 18832 14882 12339
 19821 14882 12083 10225

T SIGMA= .75 SIGMA(S)/SIGMA= .70
 ALPHA= -1 98293 BETA= 93248

R
 24661 14627 10307 -1 79350
 10101 -1 61217 -1 43497 -1 33625
 -1 61217 -1 37337 -1 26598 -1 20590
 -1 43497 -1 26598 -1 18970 -1 14693

T
 38055 26048 19611 15656
 23291 16867 13212 10851
 16867 12755 10312 -1 86714
 13212 10312 -1 85407 -1 73161

S (1/2 T SIGMA= .375)
 62716 40675 29918 23591
 33392 22989 17561 14213
 22989 16488 12972 10730
 17561 12972 10438 -1 87854

T SIGMA= 1.00 SIGMA(S)/SIGMA= .70
 ALPHA= 12615 BETA= 72105

		R		
26398		15830	11220	-1 86671
11104	-1	68160	-1 48764	-1 37851
-1 68160	-1	42146	-1 30247	-1 23517
-1 48764	-1	30247	-1 21738	-1 16914
		T		
29864		20945	16017	12921
18560		13588	10724	-1 88541
13588		10299	-1 83452	-1 70304
10724	-1	83452	-1 69030	-1 59109
		S (1/2 T SIGMA=	.500)	
56262		36774	27237	21588
29663		20404	15600	12639
20404		14514	11370	-1 93821
15600		11370	-1 90768	-1 76023

T SIGMA= 1.25 SIGMA(S)/SIGMA= .70
 ALPHA= 15135 BETA= 59799

		R		
27446		16570	11790	-1 91288
11727	-1	72565	-1 52152	-1 40596
-1 72565	-1	45262	-1 32644	-1 25459
-1 52152	-1	32644	-1 23582	-1 18408
		T		
23646		16882	13065	10626
14861		10972	-1 87105	-1 72233
10972	-1	83327	-1 67642	-1 57077
-1 87105	-1	67642	-1 55902	-1 47852
		S (1/2 T SIGMA=	.625)	
51092		33452	24854	19754
26588		18228	13926	11283
18228		12859	10029	-1 82535
13926		10029	-1 79484	-1 66260

T SIGMA= 1.50 SIGMA(S)/SIGMA= .70
 ALPHA= 17383 BETA= 51894

		R		
28092		17034	12151	-1 94232
12120	-1	75388	-1 54347	-1 42386
-1 75388	-1	47290	-1 34221	-1 26745
-1 54347	-1	34221	-1 24808	-1 19408
		T		
18843		13627	10644	-1 87147
11939	-1	88717	-1 70779	-1 58911
-1 88717	-1	67501	-1 54883	-1 46375
-1 70779	-1	54883	-1 45326	-1 38789
		S (1/2 T SIGMA=	.750)	
46935		30662	22794	18138
24059		16410	12513	10130
16411		11479	-1 89104	-1 73120
12513	-1	89104	-1 70133	-1 58197

837 070

T SIGMA= 1.75 SIGMA(S)/SIGMA= .70
 ALPHA= 19361 BETA= 46490

R

28497		17329	12382	-1	96129		
12370	-1	77209	-1	55774	-1	43557	
-1	77209	-1	48614	-1	35258	-1	27596
-1	55774	-1	35258	-1	25620	-1	20075

T

15077		11014	-1	86666	-1	71351	
-1	96131	-1	71812	-1	57526	-1	48030
-1	71812	-1	54725	-1	44559	-1	37697
-1	57526	-1	44559	-1	36780	-1	31470

S (1/2 T SIGMA= .875)

43574		28343	21048		16748	
21983		14902	11330	-1	91588	
14902		10334	-1	79817	-1	65293
11330	-1	79817	-1	62400	-1	51545

T SIGMA= 2.00 SIGMA(S)/SIGMA= .70
 ALPHA= 21080 BETA= 42636

R

28755		17518	12531	-1	97359		
12531	-1	78388	-1	56705	-1	44326	
-1	78388	-1	49479	-1	35941	-1	28160
-1	56705	-1	35941	-1	26159	-1	20519

T

12098	-1	89091	-1	70538	-1	58342	
-1	77533	-1	58171	-1	46759	-1	39146
-1	58171	-1	44392	-1	36190	-1	30650
-1	46759	-1	36190	-1	29861	-1	25546

S (1/2 T SIGMA= 1.000)

40853		26427	19585		15570	
20284		13656	10346	-1	83472	
13656	-1	93870	-1	72131	-1	58810
10346	-1	72131	-1	56020	-1	46066

T SIGMA= 2.50 SIGMA(S)/SIGMA= .70
 ALPHA= 23815 BETA= 37675

R

29026		17717	12691	-1	98687		
12703	-1	79652	-1	57711	-1	45160	
-1	79652	-1	50418	-1	36688	-1	28780
-1	57711	-1	36688	-1	26753	-1	21012

T

-1	78355	-1	58417	-1	46679	-1	38880
-1	50607	-1	38221	-1	30885	-1	25968
-1	38221	-1	29232	-1	23882	-1	20267
-1	30885	-1	23882	-1	19701	-1	16853

S (1/2 T SIGMA= 1.250)

36862		23559	17359		13757		
17764		11787	-1	88595	-1	71128	
11787	-1	79649	-1	60570	-1	49047	
-1	88595	-1	60570	-1	46454	-1	37866

T SIGMA= 3.00 SIGMA(S)/SIGMA= .70
 ALPHA= 25768 BETA= 34794

		R		
29139		17802	12759	-1 99252
12775	-1	80191	-1 58143	-1 45521
-1 80191	-1	50821	-1 37011	-1 29050
-1 58143	-1	37011	-1 27013	-1 21229
		T		
-1 51057	-1	38366	-1 30861	-1 25847
-1 33141	-1	25149	-1 20405	-1 17216
-1 25149	-1	19271	-1 15772	-1 13405
-1 20405	-1	15772	-1 13008	-1 11126
		S	(1/2 T SIGMA= 1.500)	
34244		21638	15845	12510
16089		10534	-1 78549	-1 62737
10534	-1	70092	-1 52784	-1 42455
-1 78549	-1	52784	-1 40020	-1 32355

T SIGMA= 3.50 SIGMA(S)/SIGMA= .70
 ALPHA= 27127 BETA= 33039

		R		
29186		17838	12788	-1 99494
12806	-1	80423	-1 58330	-1 45678
-1 80423	-1	50996	-1 37152	-1 29168
-1 58330	-1	37152	-1 27126	-1 21324
		T		
-1 33379	-1	25228	-1 20396	-1 17155
-1 21747	-1	16562	-1 13482	-1 11405
-1 16562	-1	12711	-1 10418	-2 88649
-1 13482	-1	10418	-2 85905	-2 73468
		S	(1/2 T SIGMA= 1.750)	
32524		20361	14827	11665
14980	-1	96985	-1 71811	-1 57083
-1 96985	-1	63707	-1 47570	-1 38033
-1 71811	-1	47570	-1 35717	-1 28671

T SIGMA= 4.00 SIGMA(S)/SIGMA= .70
 ALPHA= 28056 BETA= 31940

		R		
29207		17853	12800	-1 99599
12819	-1	80522	-1 58411	-1 45745
-1 80522	-1	51071	-1 37213	-1 29219
-1 58411	-1	37213	-1 27176	-1 21366
		T		
-1 21873	-1	16605	-1 13478	-1 11374
-1 14290	-1	10915	-2 89070	-2 75514
-1 10915	-2	83874	-2 68820	-2 58614
-2 89070	-2	68820	-2 56740	-2 48520
		S	(1/2 T SIGMA= 2.000)	
31394		19514	14148	11097
14248	-1	91437	-1 67318	-1 53297
-1 91437	-1	59459	-1 44095	-1 35081
-1 67318	-1	44095	-1 32850	-1 26218

T SIGMA= 5.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29104 BETA= 30787

R
 29219 17863 12808 -1 99665
 12827 -1 80584 -1 58461 -1 45788
 -1 80584 -1 51118 -1 37251 -1 29252
 -1 58461 -1 37251 -1 27207 -1 21392
 T
 -2 94362 -2 72087 -2 58838 -2 49891
 -2 61897 -2 47466 -2 38875 -2 33059
 -2 47466 -2 36542 -2 30031 -2 25612
 -2 38875 -2 30031 -2 24756 -2 21167
 S (1/2 T SIGMA= 2.500)
 30163 18583 13396 10465
 13446 -1 85331 -1 62348 -1 49094
 -1 85331 -1 54772 -1 40254 -1 31813
 -1 62348 -1 40254 -1 29682 -1 23509

T SIGMA= 6.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29570 BETA= 30301

R
 29222 17864 12809 -1 99677
 12829 -1 80596 -1 58470 -1 45796
 -1 80596 -1 51127 -1 37259 -1 29258
 -1 58470 -1 37259 -1 27213 -1 21397
 T
 -2 40866 -2 31343 -2 25673 -2 21834
 -2 26874 -2 20661 -2 16960 -2 14451
 -2 20661 -2 15924 -2 13100 -2 11182
 -2 16960 -2 13100 -2 10798 -3 92320
 S (1/2 T SIGMA= 3.000)
 29630 18178 13066 10186
 13097 -1 82662 -1 60166 -1 47241
 -1 82662 -1 52719 -1 38569 -1 30376
 -1 60166 -1 38569 -1 28292 -1 22320

T SIGMA= 8.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29864 BETA= 30003

R
 29222 17865 12810 -1 99680
 12829 -1 80598 -1 58472 -1 45798
 -1 80598 -1 51129 -1 37260 -1 29259
 -1 58472 -1 37260 -1 27214 -1 21398
 T
 -3 77133 -3 59403 -3 48835 -3 41661
 -3 50857 -3 39205 -3 32259 -3 27540
 -3 39205 -3 30253 -3 24914 -3 21285
 -3 32259 -3 24914 -3 20534 -3 17554
 S (1/2 T SIGMA= 4.000)
 29299 17924 12858 10010
 12880 -1 80990 -1 58795 -1 46073
 -1 80990 -1 51432 -1 37509 -1 29472
 -1 58795 -1 37509 -1 27419 -1 21574

T SIGMA= 10.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29920 BETA= 29946

R

29222		17865		12810	-1	99680
12829	-1	80598	-1	58472	-1	45798
-1 80598	-1	51129	-1	37260	-1	29259
-1 58472	-1	37260	-1	27214	-1	21398

T

-3 14610	-3	11271	-4	92793	-4	79258
-4 96435	-4	74421	-4	61293	-4	52368
-4 74421	-4	57454	-4	47336	-4	40455
-4 61293	-4	47336	-4	39012	-4	33349

S (1/2 T SIGMA= 5.000)

29237		17876		12819	-1	99759
12839	-1	80673	-1	58534	-1	45850
-1 80673	-1	51187	-1	37308	-1	29300
-1 58534	-1	37308	-1	27253	-1	21432

T SIGMA= 14.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29933 BETA= 29934

R

29222		17865		12810	-1	99680
12829	-1	80598	-1	58472	-1	45798
-1 80598	-1	51129	-1	37260	-1	29259
-1 58472	-1	37260	-1	27214	-1	21398

T

-5 52793	-5	40763	-5	33588	-5	28709
-5 34866	-5	26923	-5	22186	-5	18964
-5 26923	-5	20791	-5	17133	-5	14646
-5 22186	-5	17133	-5	14120	-5	12070

S (1/2 T SIGMA= 7.000)

29223		17865		12810	-1	99683
12829	-1	80601	-1	58475	-1	45800
-1 80601	-1	51131	-1	37262	-1	29261
-1 58475	-1	37262	-1	27215	-1	21399

T SIGMA= 20.00 SIGMA(S)/SIGMA= .70
 ALPHA= 29933 BETA= 29933

R

29222		17865		12810	-1	99680
12829	-1	80598	-1	58472	-1	45798
-1 80598	-1	51129	-1	37260	-1	29259
-1 58472	-1	37260	-1	27214	-1	21398

T

-7 36342	-7	28065	-7	23129	-7	19771
-7 24004	-7	18537	-7	15277	-7	13059
-7 18537	-7	14316	-7	11798	-7	10085
-7 15277	-7	11798	-8	97230	-8	83116

S (1/2 T SIGMA= 10.000)

29222		17865		12810	-1	99680
12829	-1	80598	-1	58472	-1	45798
-1 80598	-1	51129	-1	37260	-1	29259
-1 58472	-1	37260	-1	27214	-1	21398

T SIGMA= .25 SIGMA(S)/SIGMA= .80
 ALPHA= -1 23987 BETA= 1 26795

R
 18878 10619 -1 73046 -1 55516
 -1 66350 -1 37830 -1 26132 -1 19898
 -1 37830 -1 21635 -1 14960 -1 11396
 -1 26132 -1 14960 -1 10348 -2 78842

T
 68505 42227 30057 23220
 38758 26900 20550 16610
 26900 20126 16140 13487
 20550 16140 13385 11460

S (1/2 T SIGMA= .125)
 87383 52846 37362 28772
 45393 30683 23164 18600
 30683 22290 17636 14626
 23164 17636 14420 12248

T SIGMA= .50 SIGMA(S)/SIGMA= .80
 ALPHA= -1 46760 BETA= 1 13550

R
 26249 15309 10697 -1 81961
 10282 -1 61049 -1 42933 -1 32996
 -1 61049 -1 36424 -1 25663 -1 19741
 -1 42933 -1 25663 -1 18094 -1 13924

T
 53049 34826 25604 20144
 31097 22017 17015 13853
 22017 16460 13215 11059
 17015 13215 10911 -1 93243

S (1/2 T SIGMA= .250)
 79298 50135 36301 28340
 41379 28122 21309 17153
 28122 20103 15781 13033
 21309 15781 12720 10717

T SIGMA= .75 SIGMA(S)/SIGMA= .80
 ALPHA= -1 68392 BETA= 91852

R
 30431 18103 12772 -1 98389
 12541 -1 76148 -1 54149 -1 41876
 -1 76148 -1 46515 -1 33159 -1 25676
 -1 54149 -1 33159 -1 23662 -1 18333

T
 42388 28820 21629 17236
 25331 18162 14151 11585
 18162 13574 10905 -1 91346
 14151 10905 -1 89699 -1 76511

S (1/2 T SIGMA= .375)
 72819 46923 34401 27075
 37872 25777 19566 15772
 25777 18225 14221 11702
 19566 14221 11336 -1 94844

T SIGMA= 1.00 SIGMA(S)/SIGMA= .80
 ALPHA= -1 88759 BETA= 70383

		R		
33022		19884	14119	10917
14008	-1	86229	-1 61768	-1 47977
-1 86229	-1	53446	-1 38398	-1 29871
-1 61768	-1	38398	-1 27623	-1 21504
		T		
34407		23923	18215	14656
20812		15054	11801	-1 97029
15054		11250	-1 90429	-1 75797
11801	-1	90429	-1 74147	-1 63135
		S	(1/2 T SIGMA=	.500)
67429		43807	32334	25573
34820		23677	17978	14501
23677		16595	12883	10567
17978		12883	10177	-1 84639

T SIGMA= 1.25 SIGMA(S)/SIGMA= .80
 ALPHA= 10772 BETA= 57775

		R		
34699		21059	15019	11644
14983	-1	93061	-1 66998	-1 52201
-1 93061	-1	58234	-1 42062	-1 32831
-1 66998	-1	42062	-1 30428	-1 23769
		T		
28181		19909	15322	12420
17192		12517	-1 98589	-1 81343
12517	-1	93543	-1 75221	-1 63083
-1 98589	-1	75221	-1 61519	-1 52302
		S	(1/2 T SIGMA=	.625)
62880		40968	30341	24064
32175		21023	16559	13354
21823		15178	11728	-1 95913
16559		11728	-1 91947	-1 76071

T SIGMA= 1.50 SIGMA(S)/SIGMA= .80
 ALPHA= 12518 BETA= 49588

		R		
35810		21848	15628	12139
15641	-1	97736	-1 70610	-1 55137
-1 97736	-1	61555	-1 44629	-1 34917
-1 70610	-1	44629	-1 32411	-1 25382
		T		
23224		16594	12875	10499
14254		10429	-1 82454	-1 68225
10429	-1	77949	-1 62703	-1 52607
-1 82454	-1	62703	-1 51173	-1 43447
		S	(1/2 T SIGMA=	.750)
59034		38442	28503	22638
29895		20203	15306	12336
20203		13950	10733	-1 87524
15306		10733	-1 83584	-1 68828

T SIGMA= 1.75 SIGMA(S)/SIGMA= .80
 ALPHA= 14108 BETA= 43921

R
 36557 22384 16046 12480
 16090 10096 -1 73116 -1 57185
 10096 -1 63865 -1 46427 -1 36387
 -1 73116 -1 46427 -1 33810 -1 26525
 T
 19214 13847 10813 -1 88595
 11847 -1 87018 -1 69008 -1 57234
 -1 87018 -1 65049 -1 52342 -1 43930
 -1 69008 -1 52342 -1 42642 -1 36162
 S (1/2 T SIGMA= .875)
 55772 36231 26859 21340
 27936 18797 14212 11442
 18797 12891 -1 98769 -1 80317
 14212 -1 98769 -1 76453 -1 62687

T SIGMA= 2.00 SIGMA(S)/SIGMA= .80
 ALPHA= 15540 BETA= 39821

R
 37066 22752 16333 12716
 16398 10318 -1 74859 -1 58616
 10318 -1 65475 -1 47687 -1 37421
 -1 74859 -1 47687 -1 34797 -1 27335
 T
 15941 11565 -1 90777 -1 74668
 -1 98632 -1 72677 -1 57780 -1 48016
 -1 72677 -1 54338 -1 43735 -1 36717
 -1 57779 -1 43735 -1 35579 -1 30142
 S (1/2 T SIGMA= 1.000)
 53007 34317 25411 20183
 26261 17586 13264 10663
 17586 11981 -1 91422 -1 74139
 13264 -1 91422 -1 70376 -1 57477

T SIGMA= 2.50 SIGMA(S)/SIGMA= .80
 ALPHA= 17950 BETA= 34421

R
 37654 23179 16672 12996
 16758 10580 -1 76921 -1 60317
 10580 -1 67386 -1 49193 -1 38664
 -1 76921 -1 49193 -1 35983 -1 28314
 T
 11029 -1 80812 -1 63910 -1 52871
 -1 68600 -1 50781 -1 40522 -1 33778
 -1 50781 -1 37978 -1 30584 -1 25693
 -1 40522 -1 30584 -1 24831 -1 21004
 S (1/2 T SIGMA= 1.250)
 48683 31260 23063 18283
 23618 15658 11744 -1 94095
 15658 10536 -1 79777 -1 64357
 11744 -1 79777 -1 60814 -1 49319

T SIGMA= 3.00 SIGMA(S)/SIGMA= .80
 ALPHA= 19810 BETA= 31166
 R

37934		23385		16835		13131
16931		10707	-1	77928	-1	61151
10707	-1	68320	-1	49933	-1	39277
-1 77928	-1	49933	-1	36570	-1	28800
			T			
-1 76690	-1	56530	-1	44936	-1	37333
-1 47852	-1	35533	-1	28432	-1	23756
-1 35533	-1	26586	-1	21419	-1	18001
-1 28432	-1	21419	-1	17363	-1	14669
			S	(1/2 T SIGMA= 1.500)		
45603		29038		21329		16864
21716		14260		10636	-1	84907
14260	-1	94905	-1	71952	-1	57278
10636	-1	71352	-1	53933	-1	43469

T SIGMA= 3.50 SIGMA(S)/SIGMA= .80
 ALPHA= 21208 BETA= 29100
 R

38069		23485		16914		13197
17014		10769	-1	78421	-1	61561
10769	-1	68777	-1	50297	-1	39580
-1 78421	-1	50297	-1	36860	-1	29041
			T			
-1 53462	-1	39574	-1	31574	-1	26315
-1 33433	-1	24882	-1	19950	-1	16698
-1 24882	-1	18623	-1	15009	-1	12618
-1 19950	-1	15009	-1	12153	-1	10257
			S	(1/2 T SIGMA= 1.750)		
43415		27442		20072		15828
20358		13257	-1	98371	-1	78259
13257	-1	87400	-1	65306	-1	52198
-1 98371	-1	65306	-1	49013	-1	39299

T SIGMA= 4.00 SIGMA(S)/SIGMA= .80
 ALPHA= 22239 BETA= 27745
 R

38134		23533		16953		13229
17055		10799	-1	78662	-1	61763
10799	-1	69001	-1	50476	-1	39729
-1 78662	-1	50476	-1	37003	-1	29161
			T			
-1 37329	-1	27715	-1	22174	-1	18524
-1 23381	-1	17430	-1	13997	-1	11730
-1 17430	-1	13050	-1	10520	-2	88460
-1 13997	-1	10520	-2	85108	-2	71781
			S	(1/2 T SIGMA= 2.000)		
41867		26305		19170		15081
19393		12542	-1	92659	-1	73493
12542	-1	82050	-1	60996	-1	48575
-1 92659	-1	60996	-1	45513	-1	36339

T SIGMA= 5.00 SIGMA(S)/SIGMA= .80
 ALPHA= 23528 BETA= 26222
 R

38182	23568	16981	13253
17085	10821	-1 78839	-1 61910
10821	-1 69165	-1 50607	-1 39839
-1 78839	-1 50607	-1 37108	-1 29249

T

-1 18251	-1 13604	-1 10923	-2 91536
-1 11456	-2 85588	-2 68867	-2 57816
-2 85588	-2 64103	-2 51695	-2 43482
-2 68867	-2 51695	-2 41774	-2 35199

S (1/2 T SIGMA= 2.500)

40007	24929	18074	14168
18230	11677	-1 85726	-1 67692
11677	-1 75575	-1 55777	-1 44187
-1 85726	-1 55777	-1 41285	-1 32768

T SIGMA= 6.00 SIGMA(S)/SIGMA= .80
 ALPHA= 24186 BETA= 25507
 R

38193	23577	16988	13258
17092	10826	-1 78881	-1 61946
10826	-1 69204	-1 50639	-1 39866
-1 78881	-1 50639	-1 37133	-1 29270

T

-2 89411	-2 66798	-2 53745	-2 45118
-2 56188	-2 42033	-2 33861	-2 28455
-2 42033	-2 31489	-2 25399	-2 21368
-2 33861	-2 25399	-2 20511	-2 17273

S (1/2 T SIGMA= 3.000)

39087	24245	17526	13710
17654	11247	-1 82267	-1 64792
11247	-1 72353	-1 53179	-1 42002
-1 82267	-1 53179	-1 39184	-1 30997

T SIGMA= 8.00 SIGMA(S)/SIGMA= .80
 ALPHA= 24679 BETA= 24997
 R

38196	23579	16990	13260
17094	10828	-1 78894	-1 61957
10828	-1 69216	-1 50649	-1 39874
-1 78894	-1 50649	-1 37141	-1 29276

T

-2 21518	-2 16109	-2 12985	-2 10918
-2 13537	-2 10138	-3 81758	-3 68768
-2 10138	-3 75966	-3 61287	-3 51568
-3 81758	-3 61287	-3 49463	-3 41633

S (1/2 T SIGMA= 4.000)

38412	23741	17120	13369
17229	10929	-1 79712	-1 62645
10929	-1 69976	-1 51262	-1 40389
-1 79712	-1 51262	-1 37636	-1 29693

T SIGMA= 10.00- SIGMA(S)/SIGMA= .80
 ALPHA= 24799 BETA= 24876

R

38197		23580		16990		13260
17094		10828	-1	78895	-1	61958
10828	-1	69217	-1	50649	-1	39874
-1 78895	-1	50649	-1	37142	-1	29277

T

-3 51842	-3	38836	-3	31325	-3	26352
-3 32626	-3	24444	-3	19719	-3	16591
-3 24444	-3	18317	-3	14778	-3	12436
-3 19719	-3	14778	-3	11925	-3	10035

S (1/2 T SIGMA= 5.000)

38248		23618		17022		13287
17127		10852	-1	79092	-1	62123
10852	-1	69400	-1	50797	-1	39998
-1 79092	-1	50797	-1	37261	-1	29377

T SIGMA= 14.00- SIGMA(S)/SIGMA= .80
 ALPHA= 24835 BETA= 24840

R

38197		23580		16990		13260
17094		10828	-1	78895	-1	61958
10828	-1	69217	-1	50649	-1	39874
-1 78895	-1	50649	-1	37142	-1	29277

T

-4 30183	-4	22617	-4	18248	-4	15355
-4 18998	-4	14236	-4	11486	-5	96653
-4 14236	-4	10668	-5	86074	-5	72430
-4 11486	-5	86074	-5	69448	-5	58440

S (1/2 T SIGMA= 7.000)

38200		23582		16992		13262
17096		10829	-1	78906	-1	61967
10829	-1	69227	-1	50658	-1	39881
-1 78906	-1	50658	-1	37148	-1	29283

T SIGMA= 20.00- SIGMA(S)/SIGMA= .80
 ALPHA= 24838 BETA= 24838

R

38197		23580		16990		13260
17094		10828	-1	78895	-1	61958
10828	-1	69217	-1	50649	-1	39874
-1 78895	-1	50649	-1	37142	-1	29277

T

-6 42422	-6	31790	-6	25649	-6	21583
-6 26703	-6	20010	-6	16145	-6	13586
-6 20010	-6	14995	-6	12098	-6	10181
-6 16145	-6	12098	-7	97614	-7	82141

S (1/2 T SIGMA= 10.000)

38197		23580		16990		13260
17094		10828	-1	78895	-1	61958
10828	-1	69217	-1	50649	-1	39874
-1 78895	-1	50649	-1	37142	-1	29277

T SIGMA= .25 SIGMA(S)/SIGMA= .90
 ALPHA= -1 12242 BETA= 1 26731

R

22055	12414	-1 85417	-1 64924
-1 77631	-1 44276	-1 30588	-1 23293
-1 44276	-1 25327	-1 17514	-1 13343
-1 30588	-1 17514	-1 12116	-2 92312

T

71381	43906	31226	24114
39839	27526	20985	16942
27526	20488	16391	13678
20985	16391	13560	11593

S (1/2 T SIGMA= .125)

93435	56320	39768	30607
47602	31954	24044	19271
31954	23021	18143	15013
24044	18143	14771	12516

T SIGMA= .50 SIGMA(S)/SIGMA= .90
 ALPHA= -1 24162 BETA= 1 13443

R

31472	18390	12859	-1 98555
12376	-1 73558	-1 51751	-1 39781
-1 73558	-1 43923	-1 30956	-1 23816
-1 51751	-1 30956	-1 21832	-1 16803

T

57422	37522	27530	21636
32995	23178	17842	14493
23178	17169	13719	11449
17842	13719	11269	-1 96012

S (1/2 T SIGMA= .250)

88894	55912	40389	31491
45370	30534	23017	18471
30534	21562	16815	13830
23017	16815	13452	11281

T SIGMA= .75 SIGMA(S)/SIGMA= .90
 ALPHA= -1 35768 BETA= 90400

R

37279	22248	15717	12115
15464	-1 94085	-1 66960	-1 51806
-1 94085	-1 57566	-1 41064	-1 31809
-1 66960	-1 41064	-1 29322	-1 22725

T

47719	32221	24101	19171
27831	19745	15298	12481
19745	14575	11629	-1 96997
15298	11629	-1 94935	-1 80596

S (1/2 T SIGMA= .375)

84998	54469	39818	31286
43295	29154	21994	17661
29154	20331	15736	12881
21994	15736	12426	10332

T SIGMA= 1.00 SIGMA(S)/SIGMA= .90
 ALPHA= -1 47009 BETA= 68573

		R		
41192	24918		17728	13722
17636	10890	-1	78113	-1 60717
10890	-1 67672	-1	48674	-1 37889
-1 78113	-1 48674	-1	35052	-1 27304
		T		
40342	27799		21069	16907
23737	16952		13195	10800
16952	12479	-1	99438	-1 82883
13195	-1 99438	-1	80747	-1 68325
		S	(1/2 T SIGMA=	.500)
81535	52717		38797	30629
41373	27842		21006	16872
27842	19246		14811	12077
21006	14811		11580	-1 95629

T SIGMA= 1.25 SIGMA(S)/SIGMA= .90
 ALPHA= -1 57828 BETA= 55624

		R		
43954	26834		19187	14897
19204	11978	-1	86400	-1 67390
11978	-1 75223	-1	54425	-1 42520
-1 86400	-1 54425	-1	39432	-1 30830
		T		
34460	24081		18425	14884
20396	14634		11429	-1 93783
14634	10750	-1	85556	-1 71265
11429	-1 85556	-1	69169	-1 58356
		S	(1/2 T SIGMA=	.625)
78415	50915		37613	29780
39600	26612		20069	16117
26612	18272		13998	11378
20069	13998		10860	-1 89186

T SIGMA= 1.50 SIGMA(S)/SIGMA= .90
 ALPHA= -1 68170 BETA= 47112

		R		
45951	28236		20264	15768
20357	12787	-1	92615	-1 72423
12787	-1 80906	-1	58789	-1 46054
-1 92615	-1 58789	-1	42783	-1 33543
		T		
29648	20918		16118	13086
17617	12683	-1	99304	-1 81647
12683	-1 93011	-1	73952	-1 61561
-1 99304	-1 73952	-1	59569	-1 50127
		S	(1/2 T SIGMA=	.750)
75599	49154		36381	28854
37974	25470		19192	15407
25470	17392		13274	10761
19192	13274		10235	-1 83670

T SIGMA= 1.75 SIGMA(S)/SIGMA= .90
 ALPHA= -1 77989 BETA= 41134

R
 47421 29276 21067 16422
 21214 13394 -1 97305 -1 76238
 13394 -1 85204 -1 62109 -1 48755
 -1 97305 -1 62109 -1 45348 -1 35630

T
 25631 18212 14107 11499
 15274 11023 -1 86484 -1 71218
 11023 -1 80740 -1 64141 -1 53363
 -1 86485 -1 64141 -1 51508 -1 43248

S (1/2 T SIGMA= .875)
 73052 47488 35175 27922
 36488 24418 18379 14746
 24418 16594 12625 10212
 18379 12625 -1 96857 -1 78878

T SIGMA= 2.00 SIGMA(S)/SIGMA= .90
 ALPHA= -1 87248 BETA= 36737

R
 48515 30056 21673 16916
 21857 13853 10086 -1 79141
 13853 -1 88468 -1 64643 -1 50823
 10086 -1 64643 -1 47315 -1 37236

T
 22236 15883 12354 10102
 13279 -1 96018 -1 75451 -1 62209
 -1 96018 -1 70259 -1 55774 -1 46380
 -1 75451 -1 55774 -1 44677 -1 37441

S (1/2 T SIGMA= 1.000)
 70751 45939 34027 27019
 35136 23454 17631 14135
 23454 15873 12042 -1 97203
 17631 12042 -1 91992 -1 74677

T SIGMA= 2.50 SIGMA(S)/SIGMA= .90
 ALPHA= 10401 BETA= 30782

R
 49957 31089 22480 17578
 22711 14464 10563 -1 83049
 14464 -1 92857 -1 68066 -1 53629
 10563 -1 68066 -1 49935 -1 39424

T
 16851 12127 -1 94867 -1 77916
 10092 -1 73173 -1 57625 -1 47598
 -1 73173 -1 53465 -1 42401 -1 35235
 -1 57625 -1 42401 -1 33842 -1 28278

S (1/2 T SIGMA= 1.250)
 66808 43215 31957 25370
 32803 21781 16325 13065
 21781 14632 11047 -1 88864
 16325 11047 -1 83827 -1 67703

T SIGMA= 3.00 SIGMA(S)/SIGMA= .90
 ALPHA= 11838 BETA= 27027

		R		
50784		31685	22948	17963
23204		14819	10842	-1 85340
14819	-1	95419	-1 70075	-1 55281
10842	-1	70075	-1 51559	-1 40719
		T		
12848	-1	92849	-1 72897	-1 60053
-1 77077	-1	55975	-1 44146	-1 36510
-1 55975	-1	40865	-1 32386	-1 26897
-1 44146	-1	32386	-1 25781	-1 21495
		S	(1/2 T SIGMA= 1.500)	
63633		40970	30238	23968
30911		20417	15256	12185
20417		10246	10246	-1 82178
15256		10246	-1 77340	-1 62214

T SIGMA= 3.50 SIGMA(S)/SIGMA= .90
 ALPHA= 13046 BETA= 24516

		R		
51265		32033	23221	18188
23491		15027	11005	-1 86689
15027	-1	96924	-1 71258	-1 56257
11005	-1	71258	-1 52489	-1 41486
		T		
-1 98292	-1	71221	-1 56052	-1 46271
-1 59026	-1	42913	-1 33878	-1 28042
-1 42913	-1	31312	-1 24803	-1 20591
-1 33878	-1	24803	-1 19709	-1 16407
		S	(1/2 T SIGMA= 1.750)	
61094		39155	28826	22815
29394		19318	14393	11473
19318		12824	-1 96060	-1 76847
14393	-1	96060	-1 72197	-1 57892

T SIGMA= 4.00 SIGMA(S)/SIGMA= .90
 ALPHA= 14043 BETA= 22770

		R		
51547		32237	23382	18321
23660		15149	11101	-1 87484
15149	-1	97811	-1 71956	-1 56833
11101	-1	71956	-1 53039	-1 41940
		T		
-1 75343	-1	54690	-1 43112	-1 35640
-1 45276	-1	32940	-1 26023	-1 21553
-1 32940	-1	24026	-1 19025	-1 15790
-1 26023	-1	19025	-1 15099	-1 12555
		S	(1/2 T SIGMA= 2.000)	
59081		37706	27693	21885
28187		18443	13704	10904
18443		12184	-1 90981	-1 72624
13704	-1	90981	-1 68137	-1 54495

T SIGMA= 5.00 SIGMA(S)/SIGMA= .90
 ALPHA= 15507 BETA= 20616
 R

51809		32428		23533		18446
23817		15264		11192	-1	88231
15264	-1	98643	-1	72612	-1	57377
11192	-1	72612	-1	53557	-1	42369

T

-1 44406	-1	32299	-1	25510	-1	21124
-1 26706	-1	19446	-1	15375	-1	12743
-1 19446	-1	14178	-1	11222	-2	93107
-1 15375	-1	11222	-2	88925	-2	73847

S (1/2 T SIGMA= 2.500)

56250		35658		26084		20558
26488		17209		12729		10097
17209		11282	-1	83835	-1	66687
12729	-1	83835	-1	62449	-1	49753

T SIGMA= 6.00 SIGMA(S)/SIGMA= .90
 ALPHA= 16437 BETA= 19447
 R

51900		32494		23585		18489
23872		15304		11223	-1	88493
15304	-1	98934	-1	72842	-1	57567
11223	-1	72842	-1	53738	-1	42519

T

-1 26220	-1	19091	-1	15092	-1	12507
-1 15775	-1	11492	-2	90892	-2	75359
-1 11492	-2	83764	-2	66290	-2	54988
-2 90892	-2	66290	-2	52488	-2	43560

S (1/2 T SIGMA= 3.000)

54522		34403		25094		19740
25450		16453		12132	-1	96029
16453		10731	-1	79471	-1	63066
12132	-1	79471	-1	58987	-1	46875

T SIGMA= 8.00 SIGMA(S)/SIGMA= .90
 ALPHA= 17361 BETA= 18411
 R

51943		32526		23610		18510
23898		15323		11238	-1	88616
15323	-1	99071	-1	72950	-1	57656
11238	-1	72950	-1	53824	-1	42590

T

-2 91570	-2	66719	-2	52780	-2	43766
-2 55106	-2	40156	-2	31770	-2	26347
-2 40156	-2	29266	-2	23157	-2	19207
-2 31770	-2	23157	-2	18326	-2	15201

S (1/2 T SIGMA= 4.000)

52859		33193		24138		18947
24449		15724		11556	-1	91251
15724		10200	-1	75266	-1	59577
11556	-1	75266	-1	55656	-1	44110

T SIGMA= 10.00 SIGMA(S)/SIGMA= .90
 ALPHA= 17696 BETA= 18063

		R		
51949		32530	23613	18512
23901		15325	11240	-1 88631
15325	-1	99087	-1 72964	-1 57668
11240	-1	72964	-1 53834	-1 42599
		T		
-2 31993	-2	23314	-2 18446	-2 15298
-2 19254	-2	14032	-2 11102	-3 92076
-2 14032	-2	10226	-3 80912	-3 67107
-2 11102	-3	80912	-3 64023	-3 53101
		S	(1/2 T SIGMA= 5.000)	
52269		32763	23797	18665
24094		15465	11351	-1 89552
15465		10011	-1 73773	-1 58339
11351	-1	73773	-1 54474	-1 43130

T SIGMA= 14.00 SIGMA(S)/SIGMA= .90
 ALPHA= 17856 BETA= 17901

		R		
51949		32530	23613	18512
23902		15325	11240	-1 88633
15325	-1	99090	-1 72965	-1 57669
11240	-1	72965	-1 53836	-1 42600
		T		
-3 39089	-3	28487	-3 22540	-3 18694
-3 23525	-3	17145	-3 13565	-3 11251
-3 17145	-3	12494	-4 98861	-4 81993
-3 13565	-4	98861	-4 78222	-4 64876
		S	(1/2 T SIGMA= 7.000)	
51988		32559	23636	18531
23925		15342	11254	-1 88746
15342	-1	99215	-1 73064	-1 57751
11254	-1	73064	-1 53914	-1 42665

T SIGMA= 20.00 SIGMA(S)/SIGMA= .90
 ALPHA= 17878 BETA= 17880

		R		
51949		32530	23613	18512
23902		15325	11240	-1 88633
15325	-1	99090	-1 72965	-1 57669
11240	-1	72965	-1 53836	-1 42600
		T		
-4 16695	-4	12167	-5 96267	-5 79842
-4 10048	-5	73224	-5 57938	-5 48052
-5 73224	-5	53364	-5 42223	-5 35019
-5 57938	-5	42223	-5 33409	-5 27708
		S	(1/2 T SIGMA= 10.000)	
51951		32531	23614	18513
23903		15326	11241	-1 88638
15326	-1	99095	-1 72970	-1 57673
11241	-1	72970	-1 53839	-1 42603

T SIGMA= .25 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 14529 BETA= 1 26667
 R
 25675 14468 -1 99665 -1 75765
 -1 89894 -1 51263 -1 35438 -1 26983
 -1 51263 -1 29334 -1 20300 -1 15463
 -1 35438 -1 20300 -1 14052 -1 10705
 T
 74325 45887 32602 25160
 41011 28207 21456 17302
 28207 20882 16666 13888
 21456 16666 13751 11739
 S (1/2 T SIGMA= .125)
 1 10000 60355 42569 32736
 50000 33333 25000 20000
 33333 23815 18696 15434
 25000 18696 15156 12809

T SIGMA= .50 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 29430 BETA= 1 13333
 R
 37442 21930 15348 11766
 14786 -1 88036 -1 61964 -1 47635
 -1 88036 -1 52669 -1 37134 -1 28571
 -1 61964 -1 37134 -1 26198 -1 20163
 T
 62558 40651 29741 23350
 35214 24530 18804 15236
 24530 18002 14312 11905
 18804 14312 11689 -1 99255
 S (1/2 T SIGMA= .250)
 1 10000 62582 45089 35116
 50000 33333 25000 20000
 33333 23269 18025 14763
 25000 18025 14309 11942

T SIGMA= .75 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 44704 BETA= 88889
 R
 45551 27280 19299 14886
 19039 11610 -1 82694 -1 64006
 11610 -1 71188 -1 50813 -1 39374
 -1 82694 -1 50813 -1 36302 -1 28143
 T
 54449 36443 27160 21568
 30960 21723 16731 13599
 21723 15826 12533 10404
 16731 12533 10145 -1 85681
 S (1/2 T SIGMA= .375)
 1 10000 63722 46459 36454
 50000 33333 25000 20000
 33333 22945 17615 14342
 25000 17615 13775 11382

T SIGMA= 1.00 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 23656 BETA= 66667

R

51621	31382	22376	17339
22331	13835	-1 99376	-1 77307
13835	-1 86222	-1 62088	-1 48364
-1 99376	-1 62088	-1 44758	-1 34885

T

48379	33004	24899	19930
27669	19499	15062	12269
19499	14123	11146	-1 92337
15062	11146	-1 89535	-1 75236

S (1/2 T SIGMA= .500)

1 10000	64386	47275	37268
50000	33333	25000	20000
33333	22746	17355	14070
25000	17355	13429	11012

T SIGMA= 1.25 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 40419 BETA= 53333

R

56382	34851	24852	19927
24968	15645	11309	-1 88317
15645	-1 98652	-1 71506	-1 55923
11309	-1 71506	-1 51893	-1 40612

T

43617	30129	22920	18449
25032	17688	13691	11168
17688	12755	10037	-1 82986
13691	10037	-1 80112	-1 67015

S (1/2 T SIGMA= .625)

1 10000	64781	47773	37776
50000	33333	25000	20000
33333	22620	17188	13891
25000	17188	13201	10763

T SIGMA= 1.50 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 47125 BETA= 44444

R

60242	37329	26895	20975
27135	17149	12457	-1 97571
17149	10908	-1 79464	-1 62343
12457	-1 79464	-1 57966	-1 45511

T

39758	27691	21187	17124
22865	16185	12543	10243
16185	11631	-1 91313	-1 75366
12543	-1 91313	-1 72501	-1 60411

S (1/2 T SIGMA= .750)

1 10000	65020	48082	38099
50000	33333	25000	20000
33333	22540	17078	13771
25000	17078	13047	10592

T SIGMA= 1.75 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 53085 BETA= 38095
 R
 63448 39568 28612 22365
 28951 18417 13429 10545
 18417 11795 -1 86260 -1 67844
 13429 -1 86260 -1 63176 -1 49728
 T
 36552 25601 19668 15946
 21048 14916 11571 -1 94554
 14916 10692 -1 83773 -1 69040
 11571 -1 83773 -1 66232 -1 55004
 S (1/2 T SIGMA= .875)
 1 10000 65169 48281 38310
 50000 33333 25000 20000
 33333 22486 17003 13688
 25000 17003 12941 10473

T SIGMA= 2.00 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 43027 BETA= 33333
 R
 66161 41472 30077 23514
 30497 19502 14264 11200
 19502 12556 -1 92119 -1 72447
 14264 -1 92119 -1 67684 -1 53272
 T
 33839 23793 18334 14808
 19502 13831 10736 -1 87225
 13831 -1 98944 -1 77403 -1 63294
 10736 -1 77403 -1 60984 -1 50166
 S (1/2 T SIGMA= 1.000)
 1 10000 65265 48411 38322
 50000 33333 25000 19923
 33333 22450 16952 13574
 25000 16952 12867 10344

T SIGMA= 2.50 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 68545 BETA= 26667
 R
 70515 44541 32447 25482
 32992 21260 15622 12327
 21260 13795 10169 -1 80387
 15622 10169 -1 75071 -1 59400
 T
 29485 20829 16111 13133
 17008 12073 -1 93784 -1 76730
 12073 -1 86132 -1 67226 -1 55228
 -1 93784 -1 67226 -1 52701 -1 43462
 S (1/2 T SIGMA= 1.250)
 1 10000 65370 48558 38615
 50000 33333 25000 20000
 33333 22409 16891 13561
 25000 16891 12777 10286

T SIGMA= 3.00 SIGMA(S)/SIGMA=1.00
 ALPHA= -6 89593 BETA= 22222

		R		
73865	46911		34282	26980
34918	22623		16677	13188
22623	14759		10915	-1 86477
16677	10915	-1	80851	-1 64116
		T		
26134	18508		14347	11716
15082	10710	-1	83232	-1 68121
10710	-1 76286	-1	59453	-1 48781
-1 83232	-1 59453	-1	46459	-1 38210
		S	(1/2 T SIGMA=	1.500)
1 10000	65419		48629	38696
50000	33333		25000	20000
33333	22388		16860	13526
25000	16860		12731	10233

T SIGMA= 3.50 SIGMA(S)/SIGMA=1.00
 ALPHA= -5 10096 BETA= 19048

		R		
76528	48798		35746	28176
36451	23710		17520	13877
23710	15529		11512	-1 91358
17520	11512	-1	85485	-1 67902
		T		
23472	16645		12919	10561
13548	-1 96233	-1	74802	-1 61232
-1 96233	-1 68476	-1	53317	-1 43710
-1 74802	-1 53317	-1	41581	-1 34138
		S	(1/2 T SIGMA=	1.750)
1 10000	65443		48665	38737
50000	33333		25000	20000
33333	22377		16844	13507
25000	16844		12707	10204

T SIGMA= 4.00 SIGMA(S)/SIGMA=1.00
 ALPHA= -5 11511 BETA= 16667

		R		
78696	50336		36940	29152
37701	24597		18208	14440
24597	16159		12001	-1 95353
18208	12001	-1	89278	-1 71004
		T		
21304	15120		11743	-1 96064
12298	-1 87364	-1	67916	-1 55601
-1 87364	-1 62127	-1	48345	-1 39615
-1 67916	-1 48345	-1	37657	-1 30883
		S	(1/2 T SIGMA=	2.000)
1 10000	65456		48683	38759
50000	33333		25000	20000
33333	22371		16836	13497
25000	16836		12694	10189

Table III

 U_0 Normalized to a Unit Source Per Unit of Optical Thickness

Σ_g/Σ	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
$\Sigma \tau$										
0.25	0.2411	0.2481	0.2559	0.2642	0.2730	0.2825	0.2927	0.3036	0.3155	0.3282
0.50	0.3367	0.3520	0.3687	0.3871	0.4075	0.4303	0.4558	0.4847	0.5157	0.5553
0.75	0.3914	0.4131	0.4372	0.4645	0.4956	0.5313	0.5727	0.6215	0.6796	0.7502
1.00	0.4258	0.4521	0.4821	0.5166	0.5567	0.6040	0.6604	0.7290	0.8143	0.9232
1.25	0.4483	0.4783	0.5128	0.5531	0.6007	0.6578	0.7277	0.8152	0.9281	1.0793
1.50	0.4634	0.4962	0.5342	0.5790	0.6326	0.6980	0.7796	0.8844	1.0241	1.2200
1.75	0.4739	0.5086	0.5494	0.5977	0.6562	0.7285	0.8202	0.9406	1.1059	1.3476
2.00	0.4812	0.5175	0.5602	0.6113	0.6737	0.7516	0.8518	0.9858	1.1749	1.4625
2.50	0.4901	0.5283	0.5737	0.6286	0.6964	0.7825	0.8958	1.0521	1.2828	1.6598
3.00	0.4947	0.5341	0.5811	0.6383	0.7095	0.8010	0.9232	1.0959	1.3599	1.8187
3.50	0.4971	0.5371	0.5851	0.6436	0.7170	0.8119	0.9402	1.1246	1.4146	1.9452
4.00	0.4984	0.5388	0.5873	0.6467	0.7213	0.8185	0.9508	1.1435	1.4534	2.0462
5.00	0.4995	0.5403	0.5892	0.6494	0.7253	0.8247	0.9616	1.1639	1.4998	2.1875
6.00	0.4998	0.5407	0.5899	0.6503	0.7267	0.8271	0.9658	1.1728	1.5228	2.2740
8.00	0.5000	0.5409	0.5901	0.6507	0.7274	0.8282	0.9681	1.1783	1.5397	2.3570
10.00	0.5000	0.5409	0.5902	0.6508	0.7275	0.8284	0.9685	1.1794	1.5438	2.3865
14.00	0.5000	0.5409	0.5902	0.6508	0.7275	0.8284	0.9686	1.1796	1.5450	2.4006
20.00	0.5000	0.5409	0.5902	0.6508	0.7275	0.8284	0.9686	1.1796	1.5451	2.4024

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