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NUMERICAL TABLES ON THE RANDOM FORCE

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ABSTRACT

Numerical tables are given for evaluating characteristics of the random force or/and its time derivative.

Introduction

The idea of the random force originated from Holtsmark (1919) was first applied to the star field by Chandrasekhar and von Neumann (1942, 1943). According to the results of these authors, however, all the moments of the random force except for its mean do not converge. Such inaptness may be avoided by considering a test-star to have a non-zero radius, instead of a point mass, as shown by Camm (1963). Nevertheless, even with Camm's formulae the computed values of the mean and the variance turn out unreasonably larger than expected. Hence, the senior author tried to reformulate the random force under the following assumptions: (i) the stars with the same mass and radius are scattered randomly but uniformly in the large, (ii) the frequency distribution of the field-star's velocity is Maxwellian, and (iii) only the field-stars with the escape-velocities referred to the test-star can contribute to the random force on the test-star. Actual treatment to the required theoretical formulae is given elsewhere (Shimizu, 1969). Because of the last assumption, on which the binary encounter theory has also been based, the new result comes out reasonable and seems to be applicable to the real stellar system. But, the newly obtained theoretical formulae are not expressed, in general, by the elementary functions. Hence, we provided here the numerical tables together with the theoretical formulae for computing characteristics of the random force.

The following notations are used throughout.

G : gravitational constant,

m : mass of the star,

V_0 : velocity of the test-star,

δ : effective radius of the test-star,

n : average star density in space,

σ : dispersion in one velocity-component for field-stars, so the dispersion in the space-velocity for field-stars should be $\sqrt{3}\sigma$.

$\mu = 4Gm$, $x = \mu/2\sigma^2\delta$, $y = 2V_0^2/\sigma^2$, $y_1 = V_0/\sqrt{2}\sigma$.

$\mathbf{F} = (X, Y, Z)$: force acted on the unit mass of the test-star,

$F = |\mathbf{F}|$, $\dot{\mathbf{F}} = (\dot{X}, \dot{Y}, \dot{Z}) = d\mathbf{F}/dt$, $\dot{F} = dF/dt = |\dot{\mathbf{F}}|$,

$\Gamma\left(\nu + \frac{1}{2}\right)$: gamma function,

$\gamma\left(\nu + \frac{1}{2}, x\right)$: incomplete gamma function of the first kind,

$$I\left(\nu + \frac{1}{2}, x\right) = \gamma\left(\nu + \frac{1}{2}, x\right) / \Gamma\left(\nu + \frac{1}{2}\right),$$

$$\Pi(0, 3/2) = e^{-y/4} \sum_{\nu=0}^{\infty} \left\{ \frac{(y/4)^{\nu}}{\nu!} I\left(\nu + \frac{3}{2}, x\right) \right\},$$

$$\begin{aligned} \Pi\left(\frac{2k+1}{2}, \frac{2k+2l+1}{2}\right) &= e^{-y/4} \sum_{\nu=0}^{\infty} \left\{ \frac{(y/4)^{\nu}}{\nu!} \left(\nu + \frac{2k+1}{2}\right) \left(\nu + \frac{2k+3}{2}\right) \dots \right. \\ &\quad \left. \times \left(\nu + \frac{2k+2l-1}{2}\right) I\left(\nu + \frac{2k+2l+1}{2}, x\right) \right\}. \end{aligned}$$

(A) The moments of the random force acted on the unit mass of the moving test-star with its velocity V_0 in the z -direction due to the escaping field-stars are given by

$$\overline{F^2} = n_0 \sigma^2 \mu \text{CO2},$$

$$\overline{F^4} = n_0 \sigma^{10} \mu^{-1} \text{CO4} [1 + n_0 (5\mu^3 \text{CO2}^2 / 3\sigma^6 \text{CO4})],$$

$$\overline{F^6} = n_0 \sigma^{18} \mu^{-3} \text{CO6} [1 + n_0 (7\mu^3 \text{CO2} \cdot \text{CO4} / \sigma^6 \text{CO6}) + n_0^2 (35\mu^6 \text{CO2}^3 / 9\sigma^{12} \text{CO6})],$$

$$\begin{aligned} \overline{F^8} &= n_0 \sigma^{26} \mu^{-5} \text{CO8} [1 + n_0 (63\mu^3 \text{CO4}^2 / 5\sigma^6 \text{CO8}) + n_0 (12\mu^3 \text{CO2} \cdot \text{CO6} / \sigma^6 \text{CO8}) \\ &\quad + n_0^2 (42\mu^6 \text{CO2}^2 \cdot \text{CO4} / \sigma^{12} \text{CO8}) + n_0^3 (35\mu^3 \text{CO4}^4 / 4\sigma^{18} \text{CO8})], \end{aligned}$$

where CO2, CO4, CO6, CO8 are defined as followings.

$$\text{CO2} = (\pi/2)x[1 + (1/x)\Pi(3/2, 5/2) - \Pi(0, 3/2)],$$

$$\text{CO4} = (\pi/10)x^5[1 + (1/x^5)\Pi(3/2, 13/2) - \Pi(0, 3/2)],$$

$$\text{CO6} = (\pi/18)x^9[1 + (1/x^9)\Pi(3/2, 21/2) - \Pi(0, 3/2)],$$

$$\text{CO8} = (\pi/26)x^{13}[1 + (1/x^{13})\Pi(3/2, 29/2) - \Pi(0, 3/2)].$$

Throughout in this paper, the numerical values are expressed in the units of solar mass, parsec, and 10^6 years. As the unit of the velocity, km/s is adopted but this is nearly equal to pc/ 10^6 yr.

Table 1 gives the numerical values of CO2, CO4, CO6, CO8 for assigned values of x and y .

Table 2 gives $\log \text{CO2}$, $\log \text{CO4}$, $\log \text{CO6}$, $\log \text{CO8}$.

Table 3 gives $E1 = 5\text{CO2}/3\text{CO4}$, $E2 = 7\text{CO2} \cdot \text{CO4}/\text{CO6}$, $E3 = 35\text{CO2}/9\text{CO6}$, $E4 = 63\text{CO2}/5\text{CO8}$, $E5 = 12\text{CO2} \cdot \text{CO6}/\text{CO8}$, $E6 = 42\text{CO2} \cdot \text{CO4}/\text{CO8}$, $E7 = 35\text{CO2}/4\text{CO8}$.

Table 4 gives $\log E1$, $\log E2$, $\log E3$, $\log E4$, $\log E5$, $\log E6$, $\log E7$.

(B) The moments of the time derivative of the random force are given by

$$\overline{\dot{F}^2} = n_0 (\sigma^8 / \mu) (3D21 + 10D22^*),$$

$$\overline{\dot{Z}^3} = n_0 (\sigma^{15} / \mu^3) (D31^* - (2/3)D32^*),$$

$$\begin{aligned} \overline{\dot{F}^4} &= n_0 (\sigma^{22} / \mu^5) (D41 - (1/3)D42^* + 8D43^*) \\ &\quad + 2n_0^2 (\sigma^{16} / \mu^2) (D21 + 3D22^*) (5D21 + 16D22^*), \end{aligned}$$

where \dot{Z} is the component of $\dot{\mathbf{F}}$ along the motion of the test-star or along the z -axis. Terms marked with * vanish when the test-star is at rest.

Table 5 gives D21, D22, D31, D32, D41, D42, D43.

Table 6 gives $\log D21$, $\log D22$, $\log D31$, $\log D32$, $\log D41$, $\log D42$, $\log D43$.

(C) The cross moments of the random force and its time derivative when the test star is moving in the z -direction are given by

$$\overline{X^2 \dot{Z}} = \overline{Y^2 \dot{Z}} = -n_0 (\sigma^9 / \mu) E12^*,$$

$$\overline{Z^2 \dot{Z}} = 2n_0 (\sigma^9 / \mu) E12^*,$$

$$\overline{F^2 \dot{F}^2} = n (\sigma^{16} / \mu^3) (45E221 + 70E222^*) \text{ etc.}$$

X and Z are respectively the x- and the z- component of the random force. Terms marked by * vanish when the test-star is at rest.

Table 7 gives E12, log E12, E221, log E221, E222, log E222.

(D) Table 8 gives $I\left(\nu + \frac{1}{2}, x\right) = \gamma\left(\nu + \frac{1}{2}, x\right) / \Gamma\left(\nu + \frac{1}{2}\right)$.

Table 9 gives $G(N) \equiv \Gamma(\nu)$, $\log G(N) \equiv \log \Gamma(\nu)$, $G\left(N + \frac{1}{2}\right) \equiv \Gamma\left(\nu + \frac{1}{2}\right)$, $\log G\left(N + \frac{1}{2}\right) \equiv \log \Gamma\left(\nu + \frac{1}{2}\right)$.

(E) The probability $\tau(x, y_1)$ that an escaping star occurs at a distance x from the test-star is given by

$$\tau(x, y_1) = 1 - \frac{2}{\sqrt{\pi}} e^{-y_1^2} \sum_{\nu=0}^{\infty} \left\{ \frac{y_1^{2\nu}}{\nu!} I\left(\nu + \frac{3}{2}, x\right) \right\}.$$

Table 10 gives $T(x, y) \equiv \tau(x, y_1)$, $dT/dx \equiv \frac{\partial \tau}{\partial x}$, $ddT/ddx \equiv \frac{\partial^2 \tau}{\partial x^2}$,

$$I(x, y) \equiv - \int \frac{\partial \tau}{\partial x} \log x dx, J(x, y) \equiv \int \frac{1}{x} \frac{\partial \tau}{\partial x} dx.$$

Table 11 gives INT. $T(x, y) \equiv \int \tau(x, y_1) dx$, INT. $T/x \equiv \int \frac{\tau(x, y_1)}{x} dx$,

$$\text{INT. } T/x*2 \equiv \int \frac{\tau(x, y_1)}{x^2} dx, \text{ INT. } T/x*3 \equiv \int \frac{\tau(x, y_1)}{x^3} dx,$$

$$\text{INT. } T/x*4 \equiv \int \frac{\tau(x, y_1)}{x^4} dx, \text{ INT. } T \times x \equiv \int \tau(x, y_1) x dx.$$

In the above tables except for Table 8 and Table 9, each value for $x=50.0$ can hold still for $x>50.0$. And for the conveniency we expressed log 0 as 0.

(F) Table 12 gives the values of x and y for various sets of σ , δ and μ .

(G) Examples for calculations of the moments of $F = \sqrt{X^2 + Y^2 + Z^2}$ and its time derivative \dot{F} .

We shall show four examples in the case of $\delta = 4.51 \times 10^{-8}$ parsec ($= 2R_{\odot}$). As regards the frequency distribution function of F we adopted an approximate formula as follows,

$$w(F) = \frac{\alpha^{\frac{\gamma+1}{\beta}}}{2\Gamma\left(\frac{\gamma+1}{\beta}\right)} e^{-\alpha F^{\beta}} F^{\gamma},$$

where α, β, γ are adjustable constants. Then the k-th moment of F is given by

$$M_k = \frac{\Gamma\left(\frac{k+\gamma+1}{\beta}\right)}{\alpha^{\frac{k}{\beta}} \Gamma\left(\frac{\gamma+1}{\beta}\right)},$$

or

$$\log M_k = \log \Gamma\left(\frac{\gamma+1+k}{\beta}\right) - \log \Gamma\left(\frac{\gamma+1}{\beta}\right) - \frac{k}{\beta} \log \alpha.$$

Fitting with $\frac{\gamma+1}{\beta} = 1/2$ or 1 seems to be most convenient and probable.

The probability that a force less than an assigned value of F_0 occurs, or $\text{Pr}(F \leq F_0)$, is then given by the formula

$$\text{Pr}(F \leq F_0) = \frac{\gamma\left(\frac{\gamma+1}{\beta}, \alpha F_0^{\beta}\right)}{\Gamma\left(\frac{\gamma+1}{\beta}\right)} \equiv I\left(\frac{\gamma+1}{\beta}, \alpha F_0^{\beta}\right).$$

Case (a) $n_0=0.1, \sigma=10, \mu=1.8 \times 10^{-2}, y=2, x=2 \times 10^4$.

from table	constants	fitted value
$\log \bar{F}^2 = -0.2475$		$\log \bar{F}^2 = 0.8851$
$\log \bar{F}^4 = 13.2894$	$\alpha = 7.1$	$\log \bar{F}^4 = 12.3185$
$\log \bar{F}^6 = 28.4489$	$\beta = 2/19$	$\log \bar{F}^6 = 28.0077$
$\log \bar{F}^8 = 44.3725$	$\gamma = -17/19$	$\log \bar{F}^8 = 46.4754$
$\bar{F} = 9.0 \times 10^{-3}, \Pr(F \leq \bar{F}) = 0.9869$		
$\sqrt{\bar{F}^2} = 7.5 \times 10^{-1}, \Pr(F \leq \sqrt{\bar{F}^2}) = 0.9991$		

As for \bar{F} too, the same approximate formulae as above are applicable.

from table	
$D21 = 2.78555 \times 10^2$	
$D22 = 5.36165 \times 10$	$\bar{F}^2 = 8.0 \times 10^{11}$
$D41 = 1.70579 \times 10^{10}$	$\sqrt{\bar{F}^2} = 8.9 \times 10^5$
$D42 = 1.88187 \times 10^9$	
$D43 = 6.37439 \times 10^6$	$\bar{F}^4 = 8.7 \times 10^{39}$

Case (b) $n_0=3, \sigma=1, \mu=7.2 \times 10^{-2}, y=2, x=8 \times 10^5$

from table	constants	fitted value
$\log \bar{F}^2 = 0.8376$		$\log \bar{F}^2 = 0.4024$
$\log \bar{F}^4 = 4.1644$	$\alpha = 3.0$	$\log \bar{F}^4 = 4.3404$
$\log \bar{F}^6 = 10.1199$	$\beta = 2/7$	$\log \bar{F}^6 = 9.8083$
$\log \bar{F}^8 = 16.8383$	$\gamma = -5/7$	$\log \bar{F}^8 = 16.2841$
$\bar{F} = 2.6 \times 10^{-1}, \Pr(F \leq \bar{F}) = 0.8672$		
$\sqrt{\bar{F}^2} = 2.6, \Pr(F \leq \sqrt{\bar{F}^2}) = 0.9795$		

from table	
$D21 = 2.78555 \times 10^2$	
$D22 = 5.36165 \times 10$	$\bar{F}^2 = 6.0 \times 10^2$
$D41 = 1.70579 \times 10^{10}$	$\sqrt{\bar{F}^2} = 2.5 \times 10$
$D42 = 1.88187 \times 10^9$	
$D43 = 6.37438 \times 10^6$	$\bar{F}^4 = 2.7 \times 10^{16}$

Case (c) $n_0=50, \sigma=5, \mu=1.8 \times 10^{-2}, y=5, x=8 \times 10^3$

from table	constants	fitted value
$\log \bar{F}^2 = 1.9876$		$\log \bar{F}^2 = 2.9943$
$\log \bar{F}^4 = 13.7148$	$\alpha = 3.3$	$\log \bar{F}^4 = 13.0056$
$\log \bar{F}^6 = 26.4723$	$\beta = 2/13$	$\log \bar{F}^6 = 25.9096$
$\log \bar{F}^8 = 40.2152$	$\gamma = -11/13$	$\log \bar{F}^8 = 40.7066$
$\bar{F} = 7.5 \times 10^{-1}, \Pr(F \leq \bar{F}) = 0.9588$		
$\sqrt{\bar{F}^2} = 9.9, \Pr(F \leq \sqrt{\bar{F}^2}) = 0.9912$		

from table	
$D21 = 5.08873 \times 10^2$	
$D22 = 2.16950 \times 10^2$	$\bar{F}^2 = 4.0 \times 10^{11}$
$D41 = 1.26771 \times 10^{11}$	$\sqrt{\bar{F}^2} = 6.3 \times 10^5$
$D42 = 1.81042 \times 10^{10}$	
$D43 = 1.01546 \times 10^8$	$\bar{F}^4 = 7.9 \times 10^{32}$

Case (d) $n_0=50, \sigma=1, \mu=1.8 \times 10^{-2}, y=0.0, x=2 \times 10^5$

from table	constants	fitted value
$\log \bar{F}^2 = 0.3264$		$\log \bar{F}^2 = -0.4402$
$\log \bar{F}^4 = 5.4525$	$\alpha = 4.8$	$\log \bar{F}^4 = 4.7861$
$\log \bar{F}^6 = 12.2818$	$\beta = 1/5$	$\log \bar{F}^6 = 12.0237$
$\log \bar{F}^8 = 19.9207$	$\gamma = -4/5$	$\log \bar{F}^8 = 20.7116$

$$\bar{F} = 4.8 \times 10^{-2}, \quad \Pr(F \leq \bar{F}) = 0.9261$$

$$\sqrt{\bar{F}^2} = 1.5, \quad \Pr(F \leq \sqrt{\bar{F}^2}) = 0.9942$$

from table

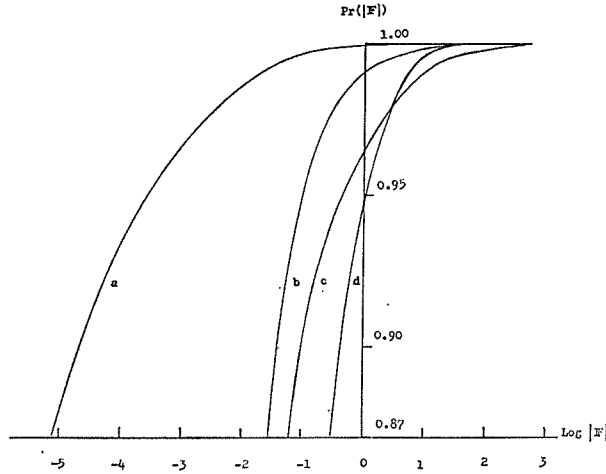
$$D21 = 1.64934 \times 10^2, \quad \bar{F}^2 = 1.4 \times 10^6$$

$$D41 = 1.65593 \times 10^9, \quad \sqrt{\bar{F}^2} = 1.2 \times 10^3$$

$$\bar{F}^4 = 4.4 \times 10^{10}$$

The part of curve of these approximated distribution function $\Pr(|F|) \equiv \Pr(F \leq F_0)$ is shown in Figure I.

Figure I



Caption of Tables

- Table 1. CO₂, ..., CO₈.
- Table 2. logCO₂, ..., logCO₈.
- Table 3. E₁ = 5CO₂/3CO₄, ..., E₇ = 35CO₂/4CO₈.
- Table 4. logE₁, ..., logE₇.
- Table 5. D₂₁, ..., D₄₃.
- Table 6. logD₂₁, ..., logD₄₃.
- Table 7. E₁₂, ..., logE₂₂₂.
- Table 8. $I\left(\nu + \frac{1}{2}, x\right) = \gamma\left(\nu + \frac{1}{2}, x\right) / \Gamma\left(\nu + \frac{1}{2}\right)$.
- Table 9. $G(N) \equiv \Gamma(\nu), \dots, \log G\left(N + \frac{1}{2}\right) \equiv \log \Gamma\left(\nu + \frac{1}{2}\right)$.
- Table 10. $T(x, y) \equiv \tau(x, y_1), \dots, J(x, y) \equiv \int \frac{1}{x} \frac{\partial \tau}{\partial x} dx$.

Table 11. $\text{INT. } T(x, y) \equiv \int \tau(x, y_1) dx, \dots, \text{INT. } T \times x \equiv \int \tau(x, y_1) x dx.$

Table 12. x and y .

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Table 1.

y = 0.0					y = 5.0				
x	c02	c04	c06	c08	x	c02	c04	c06	c08
1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00	1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00
5.00E-04	7.85396E-04	9.81740E-18	3.40882E-31	1.47497E-44	5.00E-04	7.85397E-04	9.81745E-18	3.40884E-31	1.47498E-44
1.00E-03	1.57078E-03	3.14152E-16	1.74529E-28	1.20828E-40	1.00E-03	1.57079E-03	3.14157E-16	1.74532E-28	1.20830E-40
5.00E-03	7.85315E-03	9.81576E-13	3.40794E-22	1.47459E-31	5.00E-03	7.85374E-03	9.81698E-13	3.40859E-22	1.47487E-31
1.00E-02	1.57033E-02	3.13997E-11	1.74402E-19	1.20740E-27	1.00E-02	1.57066E-02	3.14107E-11	1.74495E-19	1.20804E-27
5.00E-02	7.82812E-02	9.7559E-08	3.38102E-13	1.46294E-18	5.00E-02	7.84644E-02	9.79936E-08	3.40067E-13	1.47145E-18
1.00E-01	1.56547E-01	3.08700E-06	1.71202E-10	1.18123E-14	1.00E-01	1.56655E-01	3.12527E-06	1.73522E-10	1.20016E-14
2.50E-01	3.79407E-01	2.87275E-04	6.18909E-07	1.65448E-09	2.50E-01	3.88550E-01	3.00591E-04	6.50806E-07	1.75337E-09
5.00E-01	7.17504E-01	8.25762E-03	2.81346E-04	1.20723E-05	5.00E-01	7.62465E-01	9.27186E-03	3.19843E-04	1.37954E-05
7.50E-01	1.00861E+00	5.52701E-02	9.40303E-03	2.03054E-03	7.50E-01	1.11652E+00	6.71854E-02	1.16698E-02	2.54264E-03
1.00E+00	1.25458E+00	2.02916E-01	1.07456E-01	7.28608E-02	1.00E+00	1.44792E+00	2.68060E-01	1.46221E-01	1.00409E-01
2.50E+00	2.05095E+00	7.80228E+00	1.43878E+02	3.63413E+03	2.50E+00	2.93416E+00	1.69336E+01	3.42046E+02	8.96241E+03
5.00E+00	2.32474E+00	4.94621E+01	1.10355E+04	3.99949E+06	5.00E+00	3.98151E+00	2.12248E+02	5.96404E+04	2.35819E+07
7.50E+00	2.35318E+00	8.42299E+01	6.33216E+04	9.93287E+07	7.50E+00	4.24914E+00	5.75861E+02	6.67053E+05	1.22858E+10
1.00E+01	2.35992E+00	9.76688E+01	1.36474E+05	5.42216E+08	1.00E+01	4.30644E+00	8.26444E+02	8.26177E+06	1.25784E+19
1.35E+01	2.35619E+00	1.01618E+02	2.00562E+05	1.70716E+09	1.35E+01	4.31858E+00	1.06889E+03	5.83417E+06	8.05296E+10
2.50E+01	2.35619E+00	1.02053E+02	2.23199E+05	3.14525E+07	2.50E+01	4.31969E+00	1.12632E+03	9.45281E+06	3.91852E+11
5.00E+01	2.35619E+00	1.02053E+02	2.23187E+05	3.14847E+09	5.00E+01	4.31969E+00	1.12641E+03	9.49774E+06	4.16281E+11
y = 0.5					y = 10.0				
x	c02	c04	c06	c08	x	c02	c04	c06	c08
1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00	1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00
5.00E-04	7.85396E-04	9.81740E-18	3.40882E-31	1.47497E-44	5.00E-04	7.85398E-04	9.81747E-18	3.40884E-31	1.47498E-44
1.00E-03	1.57078E-03	3.14153E-16	1.74529E-28	1.20828E-40	1.00E-03	1.57080E-03	3.14159E-16	1.74533E-28	1.20830E-40
5.00E-03	7.85325E-03	9.81596E-13	3.40805E-22	1.47464E-31	5.00E-03	7.85391E-03	9.81733E-13	3.40877E-22	1.47495E-31
1.00E-02	1.57033E-02	3.14000E-11	1.74448E-19	1.20751E-27	1.00E-02	1.57076E-02	3.14144E-11	1.74522E-19	1.20823E-27
5.00E-02	7.83112E-02	9.76274E-08	3.38423E-13	1.46433E-18	5.00E-02	7.85178E-02	9.81217E-08	3.40645E-13	1.47394E-18
1.00E-01	1.56811E-01	3.09321E-06	1.71577E-10	1.18429E-14	1.00E-01	1.56954E-01	3.13672E-06	1.74227E-10	1.20585E-14
2.50E-01	3.80867E-01	2.89387E-04	6.23956E-07	1.67007E-09	2.50E-01	3.91406E-01	3.04829E-04	6.61014E-07	1.78535E-09
5.00E-01	7.24472E-01	8.41252E-03	2.87200E-04	1.23342E-05	5.00E-01	7.76911E-01	9.62837E-03	3.33525E-04	1.44413E-05
7.50E-01	1.02485E+00	5.70230E-02	9.73426E-03	2.10513E-03	7.50E-01	1.15595E+00	7.17868E-02	1.25595E-02	2.74511E-03
1.00E+00	1.28288E+00	2.12150E-01	1.12899E-01	7.67122E-02	1.00E+00	1.52378E+00	2.95568E-01	1.62941E-01	1.12409E-01
2.50E+00	2.16268E+00	8.84520E+00	1.65843E+02	4.21702E+03	2.50E+00	3.42399E+00	2.30346E+01	4.81058E+02	1.27852E+04
5.00E+00	2.50491E+00	6.28933E+01	1.47255E+04	5.43432E+06	5.00E+00	5.27750E+00	4.01544E+02	5.22282E+05	4.99825E+07
7.50E+00	2.54717E+00	1.13642E+02	9.57778E+04	1.55915E+08	7.50E+00	5.98787E+00	1.41647E+03	1.89743E+06	3.69482E+09
1.00E+01	2.55196E+00	1.39530E+02	2.27757E+05	9.66660E+08	1.00E+01	6.20710E+00	2.60359E+03	9.05317E+06	5.13248E+10
1.35E+01	2.55252E+00	1.47839E+02	3.65205E+05	3.51724E+09	1.35E+01	6.27361E+00	3.69979E+03	2.93331E+07	4.71801E+11
2.50E+01	2.55254E+00	1.48981E+02	4.62868E+05	7.66792E+09	2.50E+01	6.28313E+00	4.23040E+03	6.25692E+07	4.91522E+12
5.00E+01	2.55254E+00	1.48981E+02	4.62694E+05	7.72625E+09	5.00E+01	6.28319E+00	4.23644E+03	6.88347E+07	5.14591E+12
y = 2.0					y = 20.0				
x	c02	c04	c06	c08	x	c02	c04	c06	c08
1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00	1.00E-04	1.57080E-04	3.14159E-21	1.74533E-37	0.00000E+00
5.00E-04	7.85397E-04	9.81743E-18	3.40883E-31	1.47497E-44	5.00E-04	7.85398E-04	9.81748E-18	3.40885E-31	1.47498E-44
1.00E-03	1.57079E-03	3.14155E-16	1.74530E-28	1.20829E-40	1.00E-03	1.57080E-03	3.14159E-16	1.74533E-28	1.20830E-40
5.00E-03	7.85348E-03	9.81643E-13	3.40830E-22	1.47474E-31	5.00E-03	7.85398E-03	9.81747E-13	3.40884E-22	1.47498E-31
1.00E-02	1.57051E-02	3.14049E-11	1.74454E-19	1.20776E-27	1.00E-02	1.57079E-02	3.14158E-11	1.74532E-19	1.20830E-27
5.00E-02	7.83818E-02	9.77961E-08	3.39180E-13	1.46761E-18	5.00E-02	7.85379E-02	9.81702E-08	3.40864E-13	1.47489E-18
1.00E-01	1.56199E-01	3.10791E-06	1.72466E-10	1.19155E-14	1.00E-01	1.57069E-01	3.14116E-06	1.74505E-10	1.20808E-14
2.50E-01	3.84354E-01	2.94449E-04	6.36072E-07	1.70756E-09	2.50E-01	3.92574E-01	3.06600E-04	6.65308E-07	1.79896E-09
5.00E-01	7.41386E-01	8.79153E-03	3.01557E-04	1.29765E-05	5.00E-01	7.84540E-01	9.79527E-03	3.40007E-04	1.47081E-05
7.50E-01	1.06491E+00	6.13990E-02	1.05641E-02	2.29235E-03	7.50E-01	1.17530E+00	7.41378E-02	1.30295E-02	2.85303E-03
1.00E+00	1.35370E+00	2.35662E-01	1.26829E-01	8.65908E-02	1.00E+00	1.56416E+00	3.11314E-01	1.72716E-01	1.19495E-01
2.50E+00	2.46409E+00	1.18153E+01	2.29359E+02	5.91400E+03	2.50E+00	3.80954E+00	2.86507E+01	6.14861E+02	1.65397E+04
5.00E+00	3.02733E+00	1.07757E+02	2.75794E+04	1.05239E+07	5.00E+00	6.85225E+00	7.12879E+02	2.34508E+05	9.89288E+07
7.50E+00	3.12442E+00	2.33681E+02	2.28753E+05	3.95970E+08	7.50E+00	8.12871E+00	3.59244E+03	5.47725E+06	1.12953E+10
1.00E+01	3.13919E+00	3.08990E+02	6.55527E+05	3.08311E+09	1.00E+01	9.63470E+00	8.72365E+03	3.79875E+07	2.35501E+11
1.35E+01	3.14145E+00	3.43657E+02	1.24747E+06	1.44333E+10	1.35E+01	1.00860E+01	1.65991E+04	1.92029E+08	3.59872E+12
2.50E+01	3.14159E+00	3.50441E+02	1.63765E+06	4.35497E+10	2.50E+01	1.02099E+01	2.45505E+04	9.05906E+08	9.99729E+13
5.00E+01	3.14159E+00	3.50445E+02	1.63955E+06	4.43544E+10	5.00E+01	1.02102E+01	2.47071E+04	9.91687E+08	1.55725E+14

Table 2.

y = 0.0				y = 5.0					
x	log C02	log C04	log C06	log C08	x	log C02	log C04	log C06	log C08
1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00	1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00
5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01	5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01
1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01	1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01
5.00E-03	-2.10494E+00	-1.20080E+01	-2.14674E+01	-3.08313E+01	5.00E-03	-2.10494E+00	-1.20080E+01	-2.14674E+01	-3.08313E+01
1.00E-02	-1.80401E+00	-1.05031E+01	-1.87584E+01	-2.69181E+01	1.00E-02	-1.80392E+00	-1.05029E+01	-1.87582E+01	-2.69179E+01
5.00E-02	-1.10634E+00	-7.01075E+00	-1.24710E+01	-1.78348E+01	5.00E-02	-1.10533E+00	-7.00880E+00	-1.24684E+01	-1.78323E+01
1.00E-01	-8.07858E-01	-5.51046E+00	-9.76649E+00	-1.39277E+01	1.00E-01	-8.05057E-01	-5.50511E+00	-9.76064E+00	-1.39208E+01
2.50E-01	-4.20895E-01	-3.54170E+00	-6.20837E+00	-8.78134E+00	2.50E-01	-4.10553E-01	-3.52202E+00	-6.18655E+00	-8.75613E+00
5.00E-01	-1.44176E-01	-2.08315E+00	-3.55076E+00	-4.91821E+00	5.00E-01	-1.17780E-01	-2.03283E+00	-3.49506E+00	-4.86026E+00
7.50E-01	3.72121E-03	-1.25751E+00	-2.02673E+00	-2.69239E+00	7.50E-01	4.78667E-02	-1.17273E+00	-1.93294E+00	-2.59472E+00
1.00E+00	9.84977E-02	-6.92683E-01	-9.68771E-01	-1.13751E+00	1.00E+00	1.60746E-01	-5.71768E-01	-8.34990E-01	-9.98228E-01
2.50E+00	3.11954E-01	8.9221E-01	-2.15799E+00	3.56040E+00	2.50E+00	4.67484E-01	1.22890E+00	2.53040E+00	3.95242E+00
5.00E+00	3.66375E-01	1.69427E+00	4.04279E+00	6.60200E+00	5.00E+00	6.00047E-01	2.32684E+00	4.77554E+00	7.37258E+00
7.50E+00	3.71655E-01	1.92547E+00	4.80155E+00	7.99707E+00	7.50E+00	6.28301E-01	2.76032E+00	5.82416E+00	9.08940E+00
1.00E+01	3.72160E-01	1.98976E+00	5.13505E+00	8.73417E+00	1.00E+01	6.34118E-01	2.94273E+00	6.38433E+00	1.00956E+01
1.35E+01	3.7209E-01	2.00697E+00	5.30225E+00	9.23227E+00	1.35E+01	6.35341E-01	3.02893E+00	6.76598E+00	1.09060E+01
2.50E+01	3.72211E-01	2.00822E+00	5.34869E+00	9.49766E+00	2.50E+01	6.35453E-01	3.05166E+00	6.97556E+00	1.15931E+01
5.00E+01	3.72211E-01	2.00822E+00	5.34867E+00	9.49810E+00	5.00E+01	6.35453E-01	3.05170E+00	6.97762E+00	1.16194E+01
y = 0.5				y = 10.0					
x	log C02	log C04	log C06	log C08	x	log C02	log C04	log C06	log C08
1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00	1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00
5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01	5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01
1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01	1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01
5.00E-03	-2.10494E+00	-1.20081E+01	-2.14675E+01	-3.08313E+01	5.00E-03	-2.10494E+00	-1.20080E+01	-2.14674E+01	-3.08313E+01
1.00E-02	-1.80400E+00	-1.05031E+01	-1.87584E+01	-2.69181E+01	1.00E-02	-1.80389E+00	-1.05029E+01	-1.87581E+01	-2.69179E+01
5.00E-02	-1.10618E+00	-7.01043E+00	-1.24705E+01	-1.78344E+01	5.00E-02	-1.10503E+00	-7.00823E+00	-1.24677E+01	-1.78315E+01
1.00E-01	-8.07402E-01	-5.50959E+00	-9.76554E+00	-1.39256E+01	1.00E-01	-8.04229E-01	-5.50352E+00	-9.75889E+00	-1.39187E+01
2.50E-01	-4.19227E-01	-3.53852E+00	-6.20485E+00	-8.77727E+00	2.50E-01	-4.07373E-01	-3.51594E+00	-6.17979E+00	-8.74828E+00
5.00E-01	-1.39978E-01	-2.09507E+00	-3.54182E+00	-4.90899E+00	5.00E-01	-1.09193E-01	-2.01645E+00	-3.47687E+00	-4.84129E+00
7.50E-01	1.06609E-02	-1.24395E+00	-2.01170E+00	-2.67672E+00	7.50E-01	6.29328E-02	-1.14396E+00	-1.90103E+00	-2.56144E+00
1.00E+00	1.08186E-01	-6.73366E-01	-9.47309E-01	-1.11514E+00	1.00E+00	1.82921E-01	-5.29343E-01	-7.87970E-01	-9.49199E-01
2.50E+00	3.34992E-01	9.46708E-01	2.21970E+00	3.62501E+00	2.50E+00	5.34482E-01	1.36238E+00	2.68220E+00	4.10671E+00
5.00E+00	3.98791E-01	1.79864E+00	4.16807E+00	6.73519E+00	5.00E+00	7.22428E-01	2.60373E+00	5.08772E+00	7.69882E+00
7.50E+00	4.06057E-01	2.06312E+00	4.98127E+00	8.19289E+00	7.50E+00	7.77272E-01	3.15121E+00	6.27817E+00	9.56799E+00
1.00E+01	4.06874E-01	2.14447E+00	5.37774E+00	8.98527E+00	1.00E+01	7.92888E-01	3.41557E+00	6.95680E+00	1.07103E+01
1.35E+01	4.06969E-01	2.16979E+00	5.56254E+00	9.54520E+00	1.35E+01	7.97517E-01	3.56818E+00	7.46736E+00	1.16738E+01
2.50E+01	4.06973E-01	2.17313E+00	5.63029E+00	9.88468E+00	2.50E+01	7.98180E-01	3.62675E+00	7.82974E+00	1.26450E+01
5.00E+01	4.06973E-01	2.17313E+00	5.63039E+00	9.88797E+00	5.00E+01	7.98180E-01	3.62700E+00	7.83781E+00	1.27115E+01
y = 2.0				y = 20.0					
x	log C02	log C04	log C06	log C08	x	log C02	log C04	log C06	log C08
1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00	1.00E-04	-3.80388E+00	-2.05029E+01	-3.67581E+01	0.00000E+00
5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01	5.00E-04	-3.10491E+00	-1.70080E+01	-3.04674E+01	-4.38312E+01
1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01	1.00E-03	-2.80388E+00	-1.55029E+01	-2.77581E+01	-3.99178E+01
5.00E-03	-2.10494E+00	-1.20080E+01	-2.14675E+01	-3.08313E+01	5.00E-03	-2.10491E+00	-1.20080E+01	-2.14674E+01	-3.08313E+01
1.00E-02	-1.80396E+00	-1.05030E+01	-1.87583E+01	-2.69180E+01	1.00E-02	-1.80388E+00	-1.05029E+01	-1.87581E+01	-2.69178E+01
5.00E-02	-1.10578E+00	-7.00968E+00	-1.24696E+01	-1.78334E+01	5.00E-02	-1.10492E+00	-7.00802E+00	-1.24674E+01	-1.78312E+01
1.00E-01	-8.06323E-01	-5.50753E+00	-9.76330E+00	-1.39239E+01	1.00E-01	-8.03911E-01	-5.50293E+00	-9.75819E+00	-1.39179E+01
2.50E-01	-4.15268E-01	-3.53999E+00	-6.19649E+00	-8.76762E+00	2.50E-01	-4.06078E-01	-3.51333E+00	-6.17698E+00	-8.74498E+00
5.00E-01	-1.29955E-01	-2.09594E+00	-3.52063E+00	-4.88684E+00	5.00E-01	-1.05385E-01	-2.00898E+00	-3.46851E+00	-4.83244E+00
7.50E-01	2.73110E-02	-1.21184E+00	-1.97317E+00	-2.63972E+00	7.50E-01	7.01496E-02	-1.12973E+00	-1.88907E+00	-2.54469E+00
1.00E+00	1.31523E-01	-6.27711E-01	-8.96781E-01	-1.06253E+00	1.00E+00	1.94282E-01	-5.06802E-01	-7.62669E-01	-9.22651E-01
2.50E+00	3.91656E-01	1.07245E+00	2.36052E+00	3.77188E+00	2.50E+00	5.80884E-01	1.45713E+00	2.78878E+00	4.21853E+00
5.00E+00	4.81060E-01	2.03245E+00	4.44059E+00	7.02218E+00	5.00E+00	8.35833E-01	2.85302E+00	5.37016E+00	7.99532E+00
7.50E+00	4.94770E-01	2.36862E+00	5.39974E+00	8.59768E+00	7.50E+00	9.40452E-01	3.55053E+00	6.73856E+00	1.00529E+01
1.00E+01	4.96818E-01	2.48994E+00	5.81659E+00	9.48881E+00	1.00E+01	9.83838E-01	3.94093E+00	7.97964E+00	1.13720E+01
1.35E+01	4.97111E-01	2.53613E+00	6.09603E+00	1.01594E+01	1.35E+01	1.00372E+00	4.21939E+00	8.28337E+00	1.25961E+01
2.50E+01	4.97150E-01	2.54461E+00	6.21422E+00	1.06390E+01	2.50E+01	1.00902E+00	4.39016E+00	8.95708E+00	1.39999E+01
5.00E+01	4.97150E-01	2.54462E+00	6.21473E+00	1.06403E+01	5.00E+01	1.00903E+00	4.39282E+00	8.99637E+00	1.41924E+01

Table 3. (continued)

$y = 10.0$											$y = 0.0$												
x	E1	E2	E3	E4	E5	E6	E7	x	E1	E2	E3	E4	E5	E6	E7	x	E1	E2	E3	E4	E5	E6	E7
1.00E-04	1.39300E-13	1.99200E-13	1.59200E-13	8.65800E-25	0.00000E-00	0.00000E-00	0.00000E-00	1.00E-04	1.31160E-01	1.29260E-01	1.29260E-01	4.93450E-01	0.00000E-00	0.00000E-00	0.00000E-00	1.00E-04	1.31160E-01	1.29260E-01	1.29260E-01	4.93450E-01	0.00000E-00	0.00000E-00	0.00000E-00
5.00E-04	1.04720E-11	1.59380E-11	1.59380E-11	5.26890E-21	2.17817E-11	0.00000E-00	0.00000E-00	5.00E-04	1.18200E-01	1.11990E-01	2.17817E-01	1.09156E-01	0.00000E-00	0.00000E-00	0.00000E-00	5.00E-04	1.18200E-01	1.11990E-01	2.17817E-01	1.09156E-01	0.00000E-00	0.00000E-00	0.00000E-00
1.00E-03	1.29300E-10	1.99200E-10	1.59200E-10	8.65800E-19	2.72721E-10	2.69400E-20	4.40670E-20	1.00E-03	1.01160E-01	1.02960E-01	1.99200E-01	1.00125E-01	1.04350E-01	2.04905E-01	2.96443E-01	1.00E-03	1.01160E-01	1.02960E-01	1.99200E-01	1.00125E-01	1.04350E-01	2.04905E-01	2.96443E-01
5.00E-03	1.04910E-08	1.59380E-08	1.59380E-08	5.26890E-15	8.23435E-07	1.72440E-16	2.29238E-23	5.00E-03	8.02000E-01	8.19970E-01	1.57842E-01	7.83295E-01	1.83295E-01	4.69286E-01	2.33933E-01	5.00E-03	8.02000E-01	8.19970E-01	1.57842E-01	7.83295E-01	1.83295E-01	4.69286E-01	2.33933E-01
1.00E-02	1.20399E-07	1.99180E-07	1.59180E-07	8.65800E-13	2.72855E-07	2.69431E-14	4.40854E-20	1.00E-02	7.11693E-01	7.29843E-01	1.29362E-01	7.02224E-01	7.43487E-01	1.44303E-01	2.06441E-01	1.00E-02	7.11693E-01	7.29843E-01	1.29362E-01	7.02224E-01	7.43487E-01	1.44303E-01	2.06441E-01
5.00E-02	1.04710E-05	1.59180E-05	1.59180E-05	5.26820E-09	2.17736E-05	2.17736E-05	2.29524E-14	5.00E-02	5.01993E-01	5.19900E-01	1.89400E-01	4.91385E-01	5.33683E-01	1.00234E-01	1.43917E-01	5.00E-02	5.01993E-01	5.19900E-01	1.89400E-01	4.91385E-01	5.33683E-01	1.00234E-01	1.43917E-01
1.00E-01	1.20399E-04	1.97800E-04	1.57800E-04	8.65027E-07	2.72127E-04	2.69136E-08	4.40350E-11	1.00E-01	4.11659E-02	4.29270E-02	7.92774E-02	4.00718E-02	4.43292E-02	8.42474E-02	1.16280E-01	1.00E-01	4.11659E-02	4.29270E-02	7.92774E-02	4.00718E-02	4.43292E-02	8.42474E-02	1.16280E-01
5.00E-01	8.37621E-02	1.26349E-02	1.26349E-02	3.58747E-05	1.73939E-02	1.69959E-06	1.13026E-08	5.00E-01	2.01264E-01	3.09087E-01	3.70806E-01	2.79831E-01	2.32128E-01	6.02110E-01	8.03977E-01	5.00E-01	2.01264E-01	3.09087E-01	3.70806E-01	2.79831E-01	2.32128E-01	6.02110E-01	8.03977E-01
1.00E-01	1.20388E-01	1.65938E-01	1.65938E-01	4.78855E-02	2.36537E-01	6.34649E-01	5.69116E-03	7.50E-01	1.46860E-01	1.61804E-01	2.66772E-01	1.27774E-01	1.74856E-01	3.06557E-01	3.64928E-01	7.50E-01	1.46860E-01	1.61804E-01	2.66772E-01	1.27774E-01	1.74856E-01	3.06557E-01	3.64928E-01
5.00E-01	8.45070E-01	1.14793E-01	1.14793E-01	3.49395E-01	9.79280E-01	2.69020E-01	4.12642E-02	1.00E-01	1.11152E-01	1.21868E-01	1.89400E-01	8.25210E-01	1.34641E-01	2.26507E-01	2.47350E-01	1.00E-01	1.11152E-01	1.21868E-01	1.89400E-01	8.25210E-01	1.34641E-01	2.26507E-01	2.47350E-01
5.00E-01	1.15604E-01	1.21211E-01	1.21211E-01	4.70981E-01	1.94800E-01	1.94800E-01	9.40222E-02	5.00E-01	-4.64643E-02	-1.07202E-01	-6.32306E-01	-6.29587E-01	-1.12716E-02	-4.21022E-01	-1.16280E-01	5.00E-01	-4.64643E-02	-1.07202E-01	-6.32306E-01	-6.29587E-01	-1.12716E-02	-4.21022E-01	-1.16280E-01
7.50E-01	4.21805E-02	3.12805E-02	3.12805E-02	6.84216E-04	1.68982E-02	5.77909E-04	3.04441E-06	7.50E-01	-9.60307E-01	-1.17091E-01	-2.35284E-01	-2.11309E-01	-1.11366E-01	-6.25317E-01	-4.19450E-01	7.50E-01	-9.60307E-01	-1.17091E-01	-2.35284E-01	-2.11309E-01	-1.11366E-01	-6.25317E-01	-4.19450E-01
1.00E-01	2.46634E-02	1.26958E-02	1.26958E-02	1.66944E-03	1.31384E-02	8.20864E-05	2.53965E-07	1.00E-01	-1.02393E-01	-1.28804E-01	-3.40287E-01	-1.65483E-01	-2.14778E-01	-4.37685E-01	-6.30353E-01	1.00E-01	-1.02393E-01	-1.28804E-01	-3.40287E-01	-1.65483E-01	-2.14778E-01	-4.37685E-01	-6.30353E-01
1.35E-01	1.77330E-02	5.29200E-02	1.77330E-02	1.77330E-05	4.68065E-03	1.29820E-05	2.87889E-08	1.35E-01	-1.04071E-01	-2.07797E-01	-3.59879E-01	-4.11706E-01	-2.49765E-01	-4.87616E-01	-6.80143E-01	1.35E-01	-1.04071E-01	-2.07797E-01	-3.59879E-01	-4.11706E-01	-2.49765E-01	-4.87616E-01	-6.80143E-01
4.50E-01	1.25401E-02	2.76680E-02	1.25401E-02	1.25401E-05	1.15355E-03	1.39095E-06	3.06889E-09	4.50E-01	-1.04295E-01	-2.12256E-01	-3.64223E-01	-4.37953E-01	-2.69797E-01	-5.12168E-01	-7.66680E-01	4.50E-01	-1.04295E-01	-2.12256E-01	-3.64223E-01	-4.37953E-01	-2.69797E-01	-5.12168E-01	-7.66680E-01
5.00E-01	1.29313E-02	2.76680E-02	1.29313E-02	1.40139E-05	1.60857E-03	1.39095E-06	3.06889E-09	5.00E-01	-1.04295E-01	-2.12256E-01	-3.64223E-01	-4.37953E-01	-2.69797E-01	-5.12168E-01	-7.66680E-01	5.00E-01	-1.04295E-01	-2.12256E-01	-3.64223E-01	-4.37953E-01	-2.69797E-01	-5.12168E-01	-7.66680E-01

$y = 20.0$

NUMERICAL TABLES ON THE RANDOM FORCE

Table 4. (continued)

Table with 26 columns: x, log E1, log E2, log E3, log E4, log E5, log E6, log E7, log E8, log E9, log E10, log E11, log E12, log E13, log E14, log E15, log E16, log E17, log E18, log E19, log E20, log E21, log E22, log E23, log E24, log E25, log E26. Row labels on the left are x values ranging from 1.00E+04 to 5.00E-01.

Table with 26 columns: x, log E1, log E2, log E3, log E4, log E5, log E6, log E7, log E8, log E9, log E10, log E11, log E12, log E13, log E14, log E15, log E16, log E17, log E18, log E19, log E20, log E21, log E22, log E23, log E24, log E25, log E26. Row labels on the left are x values ranging from 1.00E+04 to 5.00E-01.

Table 6. (continued)

y = 2.0		y = 10.0		y = 20.0														
x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	
1.00E-04	-1.13779E-01	-1.22779E-01	-2.32195E-01	-2.53438E-01	-3.41568E-01	-3.53585E-01	-5.81650E-01	1.00E-04	-1.13779E-01	-1.15779E-01	-1.17779E-01	-1.20779E-01	1.00E-04	-1.13779E-01	-1.15779E-01	-1.17779E-01	-1.20779E-01	-1.24779E-01
5.00E-04	-9.28100E-01	-1.02810E-01	-1.90297E-01	-2.09500E-01	-2.78600E-01	-2.96631E-01	-3.18743E-01	5.00E-04	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	5.00E-04	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01
1.00E-03	-6.37791E-01	-3.37791E-01	-1.72195E-01	-1.91438E-01	-2.51568E-01	-2.63585E-01	-2.91650E-01	1.00E-03	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-03	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01
5.00E-03	-6.8100E-01	-7.28100E-01	-1.20297E-01	-1.49500E-01	-2.09500E-01	-2.28743E-01	-2.80743E-01	5.00E-03	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	5.00E-03	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01
1.00E-02	-6.37791E-01	-1.22779E-01	-1.22195E-01	-1.35438E-01	-1.65568E-01	-1.77585E-01	-1.99650E-01	1.00E-02	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-02	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01
5.00E-02	-1.28100E-01	-4.28100E-01	-7.02797E-01	-8.95000E-01	-9.86600E-01	-1.06631E-01	-1.38743E-01	5.00E-02	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	5.00E-02	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01
1.00E-01	-2.38804E-01	-3.37791E-01	-5.43595E-01	-7.11835E-01	-7.15675E-01	-8.58845E-01	-1.11650E-01	1.00E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	1.00E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01
2.50E-01	-1.85294E-01	-1.85294E-01	-2.83195E-01	-4.75635E-01	-5.57235E-01	-6.77385E-01	-7.87938E-01	2.50E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	2.50E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01
5.00E-01	-2.67065E-01	-1.28100E-01	-1.28100E-01	-2.96100E-01	-3.66600E-01	-4.68200E-01	-5.87938E-01	5.00E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	5.00E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01
7.50E-01	2.32666E-01	-7.52828E-01	2.79427E-01	-1.89394E-01	7.11695E-01	-4.83781E-01	-5.28993E-01	7.50E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	7.50E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01
1.00E-02	5.94243E-01	-4.28100E-01	-7.02797E-01	-8.95000E-01	-9.86600E-01	-1.06631E-01	-1.38743E-01	1.00E-02	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	1.00E-02	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01
5.00E-02	1.65033E-01	7.44849E-01	3.08469E-01	1.20659E-01	4.18366E-01	1.40994E-01	6.46097E-01	5.00E-02	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	5.00E-02	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01
1.00E-01	2.28294E-01	1.40735E-01	4.59494E-01	2.80157E-01	7.76785E-01	6.69775E-01	3.96423E-01	1.00E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	1.00E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01
7.50E-01	2.80695E-01	1.62914E-01	5.40747E-01	3.51135E-01	8.92533E-01	7.87748E-01	5.24553E-01	7.50E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	7.50E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01
1.00E-01	2.42917E-01	1.70179E-01	5.53011E-01	3.82165E-01	9.55224E-01	8.52872E-01	5.96311E-01	1.00E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	1.00E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01
2.50E-01	2.44315E-01	1.72910E-01	5.69011E-01	4.04772E-01	9.98608E-01	9.02925E-01	6.46097E-01	2.50E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.50E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01
5.00E-01	2.44481E-01	1.72910E-01	5.75099E-01	4.10823E-01	1.02958E-01	9.27169E-01	6.80938E-01	5.00E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	5.00E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01
7.50E-01	2.44481E-01	1.72910E-01	5.75099E-01	4.10823E-01	1.02958E-01	9.27169E-01	6.80938E-01	7.50E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	7.50E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01
y = 5.0		y = 50.0		y = 100.0														
x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	
1.00E-04	-1.13779E-01	-1.13800E-01	-2.29237E-01	-2.49469E-01	-3.39666E-01	-3.48863E-01	-3.72693E-01	1.00E-04	-1.13779E-01	-1.13779E-01	-1.13779E-01	-1.13779E-01	1.00E-04	-1.13779E-01	-1.13779E-01	-1.13779E-01	-1.13779E-01	
5.00E-04	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	5.00E-04	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	5.00E-04	-9.28100E-01	-9.28100E-01	-9.28100E-01	-9.28100E-01	
1.00E-03	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-03	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-03	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	
5.00E-03	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	5.00E-03	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	5.00E-03	-6.8100E-01	-6.8100E-01	-6.8100E-01	-6.8100E-01	
1.00E-02	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-02	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	1.00E-02	-6.37791E-01	-6.37791E-01	-6.37791E-01	-6.37791E-01	
5.00E-02	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	5.00E-02	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	5.00E-02	-1.28100E-01	-1.28100E-01	-1.28100E-01	-1.28100E-01	
1.00E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	1.00E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	1.00E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	-2.38804E-01	
2.50E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	2.50E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	2.50E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	-1.85294E-01	
5.00E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	5.00E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	5.00E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	-2.67065E-01	
7.50E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	7.50E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	7.50E-01	2.32666E-01	2.32666E-01	2.32666E-01	2.32666E-01	
1.00E-02	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	1.00E-02	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	1.00E-02	5.94243E-01	5.94243E-01	5.94243E-01	5.94243E-01	
5.00E-02	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	5.00E-02	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	5.00E-02	1.65033E-01	1.65033E-01	1.65033E-01	1.65033E-01	
1.00E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	1.00E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	1.00E-01	2.28294E-01	2.28294E-01	2.28294E-01	2.28294E-01	
7.50E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	7.50E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	7.50E-01	2.80695E-01	2.80695E-01	2.80695E-01	2.80695E-01	
1.00E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	1.00E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	1.00E-01	2.42917E-01	2.42917E-01	2.42917E-01	2.42917E-01	
2.50E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.50E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.50E-01	2.44315E-01	2.44315E-01	2.44315E-01	2.44315E-01	
5.00E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	5.00E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	5.00E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	
7.50E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	7.50E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	7.50E-01	2.44481E-01	2.44481E-01	2.44481E-01	2.44481E-01	
y = 5.0		y = 50.0		y = 100.0														
x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	x	log D1	log D2	log D3	log D4	log D5	
1.00E-04	-1.13779E-01	-1.13800E-01	-2.29237E-01	-2.49469E-01	-3.39666E-01	-3.48863E-01	-3.72693E-01	1.00E-04	-1.13779E-01	-1.13779E-01	-1.13779E-01	-1.13779E-01	1.00E-04	-1.13779E-01	-1.13779E-01	-1.1		

Table 7. (continued)

x	EL2	log EL2	EZ21	log EZ21	EZ22	log EZ22	16g EZ22
1.00E-04	2.34460E-17	-1.66505E-01	1.15680E-29	-2.89220E-01	1.28228E-29	-2.89205E-01	-2.89205E-01
1.00E-04	1.46350E-14	-1.28346E-01	9.34985E-25	-2.40292E-01	1.00178E-24	-2.39992E-01	-2.39992E-01
5.00E-05	2.34460E-13	-1.26489E-01	1.28228E-22	-2.19220E-01	1.28228E-22	-2.19220E-01	-2.19220E-01
5.00E-05	1.46350E-10	-9.83461E-01	9.34985E-18	-1.70292E-01	1.00178E-17	-1.69992E-01	-1.69992E-01
1.00E-02	2.34460E-09	-8.43049E-01	1.15680E-15	-1.49220E-01	1.28228E-15	-1.47672E-01	-1.47672E-01
5.00E-02	1.46349E-06	-5.83661E-01	9.34985E-11	-1.00292E-01	1.00178E-10	-8.99935E-01	-8.99935E-01
1.00E-01	2.34499E-05	-4.83091E-01	1.15873E-08	-7.82920E-01	1.28228E-08	-7.82920E-01	-7.82920E-01
2.50E-01	9.14257E-04	-3.83091E-01	7.30053E-06	-5.11366E-01	7.86846E-06	-5.11366E-01	-5.11366E-01
5.00E-01	1.45966E-02	-1.83091E-01	9.12034E-04	-2.03057E-01	1.02141E-03	-2.03057E-01	-2.03057E-01
7.50E-01	7.25971E-02	-1.13318E-01	1.58481E-02	-1.60030E-01	1.70915E-02	-1.76742E-01	-1.76742E-01
1.00E-00	2.30775E-01	-6.26812E-01	1.17016E-01	-9.29535E-01	1.27748E-01	-8.93646E-01	-8.93646E-01
2.50E-00	8.20718E-01	-9.07945E-01	6.29598E-01	-1.79906E-01	7.34411E-01	-1.86594E-01	-1.86594E-01
5.00E-00	8.58068E-01	-1.93352E-01	4.94295E-03	3.69402E-01	6.74291E-03	3.88262E-01	3.88262E-01
7.50E-00	2.41309E-02	2.28566E-01	4.11103E-04	6.81395E-01	6.48377E-04	4.80813E-01	4.80813E-01
1.00E-01	3.91882E-02	2.99345E-01	1.21321E-05	5.11823E-01	2.28741E-05	5.39588E-01	5.39588E-01
1.25E-01	5.11122E-02	2.70652E-01	2.96678E-05	5.47295E-01	5.72289E-05	5.75762E-01	5.75762E-01
2.50E-01	5.60352E-02	2.48446E-01	4.98517E-05	5.67990E-01	1.02301E-06	6.00988E-01	6.00988E-01
5.00E-01	5.60322E-02	2.47499E-01	4.81404E-05	5.68251E-01	1.02226E-06	6.01353E-01	6.01353E-01

y = 10.0

Table 8.

x	EL2	log EL2	EZ21	log EZ21	EZ22	log EZ22	0.0001	0.0005	0.0010	0.0050	0.0100	0.0500	0.1000	0.2500	0.5000
0	0.0112834	0.0252271	0.038766	0.0796557	0.1124629	0.2481704	0.3452792	0.5204959	0.6836895						
1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
12	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
13	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
14	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
17	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
18	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
19	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
20	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
21	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
22	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
23	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
24	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

y = 10.0

Table 8. (continued)

x	0.7500	1.0000	2.5000	5.0000	7.5000	10.0000	13.5200	25.0000	50.0000
N									
0	0.7793286	0.8427008	0.9746527	0.9984346	0.9998925	0.9999923	0.9999998	1.0000000	1.0000000
1	0.3177297	0.4275933	0.8282029	0.9814339	0.9981834	0.9998303	0.0000042	1.0000000	1.0000000
2	0.0869302	0.1508550	0.5841198	0.9247648	0.9896377	0.9987503	0.9999440	1.0000000	1.0000000
3	0.0176903	0.0401596	0.3400368	0.8114265	0.9640006	0.9944303	0.9996722	1.0000000	1.0000000
4	0.0028532	0.0085324	0.1656917	0.6495148	0.9090640	0.9820876	0.9986224	0.9999999	1.0000000
5	0.0003804	0.0015041	0.0688334	0.4696128	0.8175031	0.9546593	0.9954683	0.9999994	1.0000000
6	0.0000432	0.0002263	0.0248069	0.3060656	0.6926472	0.9047897	0.9877149	0.9999970	1.0000000
7	0.0000043	0.0000297	0.0078736	0.1802601	0.5485828	0.8280673	0.9715879	0.9999880	1.0000000
8	0.0000004	0.0000034	0.0022292	0.0963897	0.4045184	0.7257707	0.9425162	0.9999578	1.0000000
9	0.0000000	0.0000004	0.0005690	0.0470542	0.2774027	0.6054218	0.8962752	0.9998689	1.0000000
10	0.0000000	0.0000000	0.0001322	0.0210881	0.1770482	0.4787387	0.8304669	0.9996352	1.0000000
11	0.0000000	0.0000000	0.0000281	0.0087234	0.1053664	0.3580882	0.7457309	0.9990787	1.0000000
12	0.0000000	0.0000000	0.0000055	0.0033474	0.0586174	0.2531747	0.6461108	0.9978688	1.0000000
13	0.0000000	0.0000000	0.0000010	0.0011970	0.0305680	0.1692439	0.5383618	0.9954492	1.0000000
14	0.0000000	0.0000000	0.0000002	0.0004005	0.0149850	0.1070729	0.4304531	0.9909683	1.0000000
15	0.0000000	0.0000000	0.0000000	0.0001259	0.0069249	0.0641964	0.3298375	0.9832427	1.0000000
16	0.0000000	0.0000000	0.0000000	0.0000373	0.0030248	0.0365341	0.2420748	0.9707821	1.0000000
17	0.0000000	0.0000000	0.0000000	0.0000104	0.0012520	0.0197691	0.1701626	0.9519023	1.0000000
18	0.0000000	0.0000000	0.0000000	0.0000028	0.0004923	0.0101891	0.1146052	0.9249312	0.9999999
19	0.0000000	0.0000000	0.0000000	0.0000007	0.0001843	0.0050107	0.0740033	0.8884837	0.9999997
20	0.0000000	0.0000000	0.0000000	0.0000002	0.0000658	0.0023551	0.0458527	0.8417562	0.9999992
21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000225	0.0010597	0.0272870	0.7847715	0.9999981
22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000073	0.0004572	0.0156122	0.7185101	0.9999953
23	0.0000000	0.0000000	0.0000000	0.0000000	0.0000023	0.0001894	0.0085969	0.6448864	0.9999893
24	0.0000000	0.0000000	0.0000000	0.0000000	0.0000007	0.0000755	0.0045609	0.5665633	0.9999763
25	0.0000000	0.0000000	0.0000000	0.0000000	0.0000002	0.0000289	0.0023337	0.4866418	0.9999500
26	0.0000000	0.0000000	0.0000000	0.0000000	0.0000001	0.0000107	0.0011528	0.4082873	0.9998984
27	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000038	0.0005503	0.3343680	0.9998010
28	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000013	0.0002541	0.2671687	0.9996238
29	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000004	0.0001136	0.2082219	0.9993130
30	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000001	0.0000492	0.1582670	0.9987863
31	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000207	0.1173203	0.9979228
32	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000084	0.0848230	0.9965521
33	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000033	0.0598250	0.9944434
34	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000013	0.0411698	0.9912961
35	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000005	0.0276516	0.9867347
36	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000002	0.0181317	0.9803103
37	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000001	0.0116112	0.9715097
38	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0072642	0.9597755
39	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0044415	0.9445364
40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0026550	0.9252464
41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0015522	0.9014315
42	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0008878	0.8727389
43	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0004970	0.8389829
44	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0002724	0.8001829
45	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0001463	0.7565874
46	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000769	0.7086802
47	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000397	0.6571671
48	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000201	0.6029428
49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000099	0.5470415

Table 9.

Table with 18 columns: H, G(H), log G(H), G(H+1/2), log G(H+1/2), G(H+1/2), log G(H), G(H), log G(H), G(H+1/2), log G(H+1/2), G(H+1/2), log G(H+1/2), G(H+1/2), log G(H+1/2), G(H+1/2), log G(H+1/2). The table contains numerical data for various values of H from 0 to 39.

Table 10.

y = 0.0					y = 2.0				
x	T(x,y)	dT/dx	d ² T/dx ²	I(x,y)	x	T(x,y)	dT/dx	d ² T/dx ²	I(x,y)
1.00E-04	9.9999995E-01	-1.1282663E-02	-5.6402045E+00	-7.4295722E-06	-2.2566813E-02	1.00E-04	9.9999995E-01	-1.070450E-04	-1.0738699E+00
1.00E-03	9.9999199E-01	-2.521871E-02	-2.519349E+01	-6.951372E-05	-5.0454243E-02	1.00E-03	9.9999995E-01	-4.6251299E-04	-4.6232934E+01
1.00E-02	9.9997623E-01	-3.5646818E-02	-1.7787762E-01	-1.8007852E-04	-7.1314118E-02	1.00E-02	9.9999995E-01	-6.5456566E-04	-3.284074E+01
1.00E-01	9.9973483E-01	-7.9390599E-02	-7.8596604E+00	-1.5831917E-03	-1.5931133E-01	1.00E-01	9.9999995E-01	-1.4735537E-03	-1.473047E+01
1.00E-02	9.9952524E-01	-1.1171216E-01	-5.1474049E+00	-3.9432416E-03	-2.2492369E-01	1.00E-02	9.9998608E-01	-2.1011363E-03	-1.0849984E+01
1.00E-01	9.9183742E-01	-2.4000779E-01	-2.1160070E+00	-2.5966203E-02	-4.9634073E-01	1.00E-01	9.9983826E-01	-5.0059118E-03	-5.7749581E+02
1.00E-02	9.7758930E-01	-3.2208645E-01	-1.2914978E+00	-6.6904786E-02	-6.905531E-01	1.00E-02	9.9983826E-01	-7.6215564E-02	-4.8927310E+02
1.00E-01	9.1889141E-01	-4.3939129E-01	-4.9392195E+01	-1.6982862E-01	-1.0409985E+00	1.00E-01	9.9785005E-01	-1.4594003E-02	-4.5962086E+02
1.00E-02	8.028196E-01	-4.839445E-01	0.0600005E+00	-2.6684638E-01	-1.3637795E-01	1.00E-02	9.9759366E-01	-2.6447416E-02	-4.8626216E+02
1.00E-01	6.8227033E-01	-4.6199879E-01	1.5386622E-01	-3.4736184E-01	-1.5586375E+00	1.00E-01	9.8458082E-01	-3.8947608E-02	-5.1147463E+02
1.00E+00	5.2846670E-01	-4.1510790E-01	2.0752373E-01	-3.5908713E-01	-1.6854015E+00	1.00E+00	9.7323497E-01	-5.1387103E-02	-5.1494657E+02
1.00E-04	1.7179714E-01	-1.1644983E-01	1.1715985E-01	-1.7860144E-01	-1.9493954E+00	1.00E-04	8.4154595E-01	-1.1835021E-01	-3.11353240E+02
1.00E-03	1.8366135E-02	-1.7000735E-02	1.5304660E-02	-1.9968692E-03	-5.0053E-03	1.00E-03	5.0264827E-01	-1.234010E-01	1.4083620E-02
1.00E-02	1.8166490E-03	-1.7091378E-03	1.5951935E-03	-3.260233E-02	-1.9997850E-03	1.00E-02	2.985436E-01	-8.1740298E-02	2.2045625E-02
1.00E+01	1.6974246E-04	-1.6199823E-04	1.5389831E-04	3.6082937E-02	-1.9999849E+00	1.00E+01	8.6650639E-02	-3.6538595E-02	1.3427377E-02
1.35E+01	3.7747584E-06	-5.5754768E-06	5.3694831E-06	3.6474524E-02	-1.9999996E+00	1.35E+01	1.7359551E-02	-8.4732744E-03	3.8644207E-03
2.50E+01	1.4002218E-10	-7.8354333E-11	7.6787245E-11	3.4489974E-02	-2.0000000E+00	2.50E+01	2.8451956E-05	-1.7406315E-05	1.5224659E-05
5.00E+01	0.0000000E-00	-1.5359357E-21	1.5235305E-21	3.6489975E-02	-2.0000000E+00	5.00E+01	1.0931936E-11	-9.5759998E-13	6.8672110E-13
y = 0.5					y = 3.0				
x	T(x,y)	dT/dx	d ² T/dx ²	I(x,y)	x	T(x,y)	dT/dx	d ² T/dx ²	I(x,y)
1.00E-04	9.9999941E-01	-8.7897093E-03	-4.3928145E+01	-5.7872969E-06	-1.7571513E-02	1.00E-04	1.0000000E+00	-1.1565942E-13	-7.8722861E-10
1.00E-03	9.9999345E-01	-1.9641990E-02	-1.9525623E-01	-5.4452080E-05	-3.9294894E-02	1.00E-03	1.0000000E+00	-3.5316201E-13	-3.5868735E-10
1.00E-02	9.9996148E-01	-2.7766397E-02	-1.3860593E+01	-1.4029309E-04	-5.5953656E-02	1.00E-02	1.0000000E+00	-5.0353377E-13	-2.5950716E-10
1.00E-01	9.9979399E-01	-6.1860028E-02	-6.1365202E+00	-1.2430623E-03	-1.2430623E-03	1.00E-01	1.0000000E+00	-1.1967748E-12	-1.3779784E-10
1.00E+00	9.9941707E-01	-8.7146954E-02	-4.2848123E+00	-3.0739793E-03	-1.7526959E-03	1.00E+00	1.0000000E+00	-1.8233317E-12	-1.1788069E-10
1.00E-02	9.9361142E-01	-1.6847981E-01	-1.7276273E+00	-2.3446975E-02	-3.8761164E-01	1.00E-02	1.0000000E+00	-6.8939285E-12	-1.5082284E-10
1.00E-01	9.8237128E-01	-2.1556620E-01	-1.0649773E+00	-5.2574896E-02	-5.1407249E-02	1.00E-01	1.0000000E+00	-1.6791608E-11	-4.7832881E-10
1.00E+01	9.3325543E-01	-3.525393E-01	-4.1310756E-01	-1.3950709E-01	-8.2123367E-02	1.00E+01	1.0000000E+00	-9.056132E-11	-8.5132288E-10
1.00E-01	8.3779941E-01	-4.0595842E-01	-6.6011054E-02	-2.1180505E-01	-1.0395232E+00	1.00E-01	1.0000000E+00	-5.5952926E-10	-3.3978866E-09
1.00E+01	7.3319019E-01	-4.6654683E-01	7.0895636E+02	-2.8075101E-01	-1.2559813E+00	1.00E+01	1.0000000E+00	-2.1135203E-09	-1.0139240E+08
1.00E+00	6.566252E-01	-3.7992614E-01	1.3049573E-01	-1.3049573E-01	-1.3659586E+00	1.00E+00	1.0000000E+00	-6.7491173E-09	-2.3596469E+08
2.50E+01	2.3264634E-01	-1.6788479E-01	1.1010180E-01	-1.0918102E-01	-1.6154995E+00	2.50E+01	9.9999995E-01	-1.023801E-06	-8.1122526E-02
5.00E+00	3.4479742E-02	-2.7384993E-02	2.1113497E-02	1.3669727E-01	-1.6204953E+00	5.00E+00	9.9988977E-01	-2.2714628E-05	-3.3554659E+05
1.00E+01	4.5181289E-03	-3.7427233E-03	3.0515666E-03	1.6547048E-01	-1.6972717E+00	1.00E+01	9.9984975E-01	-2.8011923E-04	-2.8011923E-04
1.00E+01	5.5379811E-04	-4.7042428E-04	3.9277462E-04	1.9130704E-01	-1.6976955E+00	1.00E+01	9.9729595E-01	-1.9865630E-03	-1.1194362E-03
1.35E+01	2.638310E-05	-2.3353460E-05	2.0147242E-05	1.9313248E-01	-1.6977437E+00	1.35E+01	9.7913192E-01	-9.7997597E-03	-3.5661367E+03
2.50E+01	1.0604708E-09	-9.0561183E-10	8.1504642E-10	1.9260418E-01	-1.6977493E+00	2.50E+01	5.5641898E-01	-5.6418998E-02	0.0000000E+00
5.00E+01	0.0000000E+00	-9.9782129E-20	9.2726457E-20	1.9459418E-01	-1.6977455E+00	5.00E+01	2.4743854E-03	-7.7374212E-04	2.5662382E-04
1.00E+01	9.9999995E-01	-1.1282663E-02	-5.6402045E+00	-7.4295722E-06	-2.2566813E-02	1.00E+01	9.9999995E-01	-1.070450E-04	-1.0738699E+00
1.00E-03	9.9999199E-01	-2.521871E-02	-2.519349E+01	-6.951372E-05	-5.0454243E-02	1.00E-03	9.9999995E-01	-4.6251299E-04	-4.6232934E+01
1.00E-02	9.9997623E-01	-3.5646818E-02	-1.7787762E-01	-1.8007852E-04	-7.1314118E-02	1.00E-02	9.9999995E-01	-6.5456566E-04	-3.284074E+01
1.00E-01	9.9973483E-01	-7.9390599E-02	-7.8596604E+00	-1.5831917E-03	-1.5931133E-01	1.00E-01	9.9999995E-01	-1.4735537E-03	-1.473047E+01
1.00E-02	9.9952524E-01	-1.1171216E-01	-5.1474049E+00	-3.9432416E-03	-2.2492369E-01	1.00E-02	9.9998608E-01	-2.1011363E-03	-1.0849984E+01
1.00E-01	9.9183742E-01	-2.4000779E-01	-2.1160070E+00	-2.5966203E-02	-4.9634073E-01	1.00E-01	9.9983826E-01	-5.0059118E-03	-5.7749581E+02
1.00E-02	9.7758930E-01	-3.2208645E-01	-1.2914978E+00	-6.6904786E-02	-6.905531E-01	1.00E-02	9.9983826E-01	-7.6215564E-02	-4.8927310E+02
1.00E-01	9.1889141E-01	-4.3939129E-01	-4.9392195E+01	-1.6982862E-01	-1.0409985E+00	1.00E-01	9.9785005E-01	-1.4594003E-02	-4.5962086E+02
1.00E-02	8.028196E-01	-4.839445E-01	0.0600005E+00	-2.6684638E-01	-1.3637795E-01	1.00E-02	9.9759366E-01	-2.6447416E-02	-4.8626216E+02
1.00E-01	6.8227033E-01	-4.6199879E-01	1.5386622E-01	-3.4736184E-01	-1.5586375E+00	1.00E-01	9.8458082E-01	-3.8947608E-02	-5.1147463E+02
1.00E+00	5.2846670E-01	-4.1510790E-01	2.0752373E-01	-3.5908713E-01	-1.6854015E+00	1.00E+00	9.7323497E-01	-5.1387103E-02	-5.1494657E+02
1.00E-04	1.7179714E-01	-1.1644983E-01	1.1715985E-01	-1.7860144E-01	-1.9493954E+00	1.00E-04	8.4154595E-01	-1.1835021E-01	-3.11353240E+02
1.00E-03	1.8366135E-02	-1.7000735E-02	1.5304660E-02	-1.9968692E-03	-5.0053E-03	1.00E-03	5.0264827E-01	-1.234010E-01	1.4083620E-02
1.00E-02	1.8166490E-03	-1.7091378E-03	1.5951935E-03	-3.260233E-02	-1.9997850E-03	1.00E-02	2.985436E-01	-8.1740298E-02	2.2045625E-02
1.00E+01	1.6974246E-04	-1.6199823E-04	1.5389831E-04	3.6082937E-02	-1.9999849E+00	1.00E+01	8.6650639E-02	-3.6538595E-02	1.3427377E-02
1.35E+01	3.7747584E-06	-5.5754768E-06	5.3694831E-06	3.6474524E-02	-1.9999996E+00	1.35E+01	1.7359551E-02	-8.4732744E-03	3.8644207E-03
2.50E+01	1.4002218E-10	-7.8354333E-11	7.6787245E-11	3.4489974E-02	-2.0000000E+00	2.50E+01	2.8451956E-05	-1.7406315E-05	1.5224659E-05
5.00E+01	0.0000000E-00	-1.5359357E-21	1.5235305E-21	3.6489975E-02	-2.0000000E+00	5.00E+01	1.0931936E-11	-9.5759998E-13	6.8672110E-13

Table 12.

Table of x

$\mu = 4.500E-03$

δ	2R \odot		1AU	
	4.51E-08 pc		4.85E-06 pc	
σ	x	log x	x	log x
1	4.98891E+04	4.69801E+00	4.63918E+02	2.66644E+00
5	1.99557E+03	3.30007E+00	1.85567E+01	1.26850E+00
10	4.98891E+02	2.69801E+00	4.63918E+00	6.66441E-01
15	2.21729E+02	2.34582E+00	2.06186E+00	3.14258E-01
20	1.24723E+02	2.09595E+00	1.15979E+00	6.43808E-02

$\mu = 1.800E-02$

δ	2R \odot		1AU	
	4.51E-08 pc		4.85E-06 pc	
σ	x	log x	x	log x
1	1.99557E+05	5.30007E+00	1.85567E+03	3.26850E+00
5	7.98226E+03	3.90213E+00	7.42268E+01	1.87056E+00
10	1.99557E+03	3.30007E+00	1.85567E+01	1.26850E+00
15	8.86918E+02	2.94788E+00	8.24742E+00	9.16318E-01
20	4.98891E+02	2.69801E+00	4.63918E+00	6.66441E-01

$\mu = 7.200E-02$

δ	2R \odot		1AU	
	4.51E-08 pc		4.85E-06 pc	
σ	x	log x	x	log x
1	7.98226E+05	5.90213E+00	7.42268E+03	3.87056E+00
5	3.19290E+04	4.50419E+00	2.96907E+02	2.47262E+00
10	7.98226E+03	3.90213E+00	7.42268E+01	1.87056E+00
15	3.54767E+03	3.54994E+00	3.29897E+01	1.51838E+00
20	1.99557E+03	3.30007E+00	1.85567E+01	1.26850E+00

Table of y

α/V	$V_* = 2.0$		$V_* = 5.0$		$V_* = 10.0$		$V_* = 20.0$	
	y	log y	y	log y	y	log y	y	log y
1	8.00000E+00	9.03090E-01	5.00000E+01	1.69897E+00	2.00000E+02	2.30103E+00	8.00000E+02	2.90309E+00
5	3.20000E-01	-4.94850E-01	2.00000E+00	3.01030E-01	8.00000E+00	9.03090E-01	3.20000E+01	1.50515E+00
10	8.00000E-02	-1.09691E+00	5.00000E-01	-3.01030E-01	2.00000E+00	3.01030E-01	8.00000E+00	9.03090E-01
15	3.55556E-02	-1.44909E+00	2.22222E-01	-6.53213E-01	8.88889E-01	-5.11525E-02	3.55556E+00	5.50907E-01
20	2.00000E-02	-1.69897E+00	1.25000E-01	-9.03090E-01	5.00000E-01	-3.01030E-01	2.00000E+00	3.01030E-01