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# **NATIONAL BUREAU OF STANDARDS REPORT**

2851

**Tables of Autoregressive Series**

**Computation Laboratory**



**U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS**

U. S. DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

NATIONAL BUREAU OF STANDARDS

A. V. Astin, Director



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● Office of Basic Instrumentation

● Office of Weights and Measures.

# NATIONAL BUREAU OF STANDARDS REPORT

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## Tables of Autoregressive Series

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**U. S. DEPARTMENT OF COMMERCE**  
**NATIONAL BUREAU OF STANDARDS**

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## TABLES OF AUTOREGRESSIVE SERIES

This report contains a number of artificially generated autoregressive series, compiled for the purpose of testing the goodness of certain estimates of statistics for stationary time series.

The series presented here were generated by means of two autoregressive schemes,

$$(1) \quad x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

and

$$(2) \quad x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

where the magnitudes  $\epsilon_t$  are independently distributed random numbers. A total of eight series are presented. The first four are derived from random numbers  $\epsilon_t$  taken from a rectangular distribution; two of these series are based on scheme (1), the other two on scheme (2). The next four series are derived from random numbers  $\epsilon_t$  taken from a Gaussian distribution; again two of these are based on scheme (1), two on scheme (2).

For each of these series the statistic

$$(3) \quad \sum_{s=1}^{N-r} x_s x_{s+r}$$

has been computed for  $r = 0(1) 30$ ; these values are listed on pp. 24 and 45.

The rectangular numbers were taken from the tables of

"Digits of 0(1)9 Drawn at Random" of the Rand Corporation<sup>1)</sup>, Pairs of digits were combined into numbers of the set 0(.01).99, so that the  $\epsilon_t$  used in these four series actually come from a discrete rectangular distribution, whose mean is .495. These four series of values  $x_t$  were calculated for  $t$  ranging from 3 to 300 (by putting  $x_0 = x_1 = x_2 = 0$ ), so that each contains 298 values. Although the summations (3) contain 300 terms, the first two of these are zero in each case.

The Gaussian random numbers (normal deviates) were taken from the tables of "Random Gaussian deviates from  $N(0,1)$ " of the Rand Corporation<sup>2)</sup>. The original numbers, which are given to 3 decimal places, were multiplied by 10 for purposes of presentation, so that the series given are based on random numbers from  $N(0,10)$  to 2 decimal places. In each series, 300 numbers were used, giving 300 terms of the series  $x_t$  ( $t=1(1)300$ ) with  $x_0 = x_{-1} = x_{-2} = 0$ .

In addition to the random number ( $\epsilon_t$ ) there is a pseudo-random error present in each term  $x_t$  as a result of rounding off the results of the two or three multiplications occurring in (1) and (2). The probability distribution of these errors is not easily ascertained. The limitations of the computing machines used in the process made it advisable to round each product separately to 2D (rather than round only the sum of all products).

These computations were proposed by M. Rosenblatt and N. Grenander, of the Statistical Research Center, University of Chicago, in connection with their investigations on spectral analysis of time series<sup>3)</sup>. The computations were sponsored by the Office of Naval Research under Contract 165-53. They were carried out by the staff of the Computation Laboratory of the National Bureau of Standards. Punched-card machines of type 604 were used to perform the principal computations.

A related topic is discussed in NBS Report 2776 "Note on the Simulation of Autoregressive Series".

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1) Cf. "A Guide to Tables on Punched Cards", Math. Tables and Other Aids to Comp., V, 36, Oct. 1951, p. 209, item 25.1. Series No. 1, 2, and 3 of this report are taken, respectively, from cols. 19 and 20, 25 and 26, 31 and 32 of cards 0 to 297, and Series No. 4 from cols. 31 and 32 of cards 300 to 597, of the deck described there.

2) Ibid, item 25.2. The four series of this report are taken from the second, fourth, sixth, and eighth field, respectively, of cards 3501 to 3800.

3) Cf. N. Grenander and M. Rosenblatt, "On Spectral Analysis of Stationary Time Series", Memoranda SRC-20417 Gr Rs 17 and SRC-20428 Gr Rs 17, Statistical Research Center, University of Chicago, April 1952; Also Proc. Nat. Acad. Sci. U.S.A. Vol. 38, No. 6, June 1952).

RECTANGULAR DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t  | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|----|--------------|-------|
| 1  | .00          | .00   | 31 | .21          | 1.04  |
| 2  | .00          | .00   | 32 | .37          | .63   |
| 3  | .86          | .86   | 33 | .24          | .31   |
| 4  | .96          | 1.91  | 34 | .59          | .55   |
| 5  | .03          | 1.61  | 35 | .54          | .96   |
| 6  | .15          | .77   | 36 | .42          | 1.15  |
| 7  | .47          | .35   | 37 | .86          | 1.55  |
| 8  | .50          | .43   | 38 | .41          | 1.43  |
| 9  | .06          | .32   | 39 | .04          | .68   |
| 10 | .92          | 1.01  | 40 | .79          | .68   |
| 11 | .48          | 1.40  | 41 | .46          | .80   |
| 12 | .78          | 1.71  | 42 | .51          | .98   |
| 13 | .07          | 1.11  | 43 | .04          | .64   |
| 14 | .32          | .51   | 44 | .49          | .60   |
| 15 | .83          | .72   | 45 | .74          | 1.02  |
| 16 | .01          | .49   | 46 | .96          | 1.72  |
| 17 | .69          | .80   | 47 | .71          | 1.99  |
| 18 | .50          | 1.09  | 48 | .70          | 1.86  |
| 19 | .15          | .87   | 49 | .43          | 1.29  |
| 20 | .14          | .45   | 50 | .27          | .57   |
| 21 | .48          | .46   | 51 | .10          | -.04  |
| 22 | .14          | .38   | 52 | .76          | .38   |
| 23 | .86          | 1.00  | 53 | .27          | .71   |
| 24 | .58          | 1.45  | 54 | .54          | 1.09  |
| 25 | .54          | 1.54  | 55 | .69          | 1.46  |
| 26 | .40          | 1.22  | 56 | .49          | 1.45  |
| 27 | .84          | 1.26  | 57 | .03          | .75   |
| 28 | .74          | 1.40  | 58 | .85          | .81   |
| 29 | .53          | 1.31  | 59 | .91          | 1.35  |
| 30 | .87          | 1.47  | 60 | .28          | 1.28  |



RECTANGULAR DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|-----|--------------|-------|
| 61 | .69          | 1.29  | 91  | .01          | .64   |
| 62 | .91          | 1.56  | 92  | .12          | .26   |
| 63 | .01          | .96   | 93  | .84          | .75   |
| 64 | .88          | 1.00  | 94  | .61          | 1.28  |
| 65 | .57          | 1.09  | 95  | .59          | 1.55  |
| 66 | .21          | .81   | 96  | .63          | 1.57  |
| 67 | .70          | .94   | 97  | .92          | 1.72  |
| 68 | .69          | 1.23  | 98  | .50          | 1.45  |
| 69 | .70          | 1.49  | 99  | .42          | .99   |
| 70 | .66          | 1.56  | 100 | .15          | .37   |
| 71 | .31          | 1.14  | 101 | .73          | .55   |
| 72 | .61          | .92   | 102 | .62          | 1.01  |
| 73 | .11          | .44   | 103 | .94          | 1.72  |
| 74 | .86          | .79   | 104 | .80          | 2.08  |
| 75 | .17          | .78   | 105 | .15          | 1.41  |
| 76 | .72          | 1.11  | 106 | .31          | .61   |
| 77 | .35          | 1.10  | 107 | .05          | .13   |
| 78 | .72          | 1.26  | 108 | .94          | .43   |
| 79 | .14          | .87   | 109 | .73          | 1.28  |
| 80 | .83          | 1.03  | 110 | .02          | 1.17  |
| 81 | .07          | .68   | 111 | .17          | .69   |
| 82 | .47          | .60   | 112 | .19          | .25   |
| 83 | .00          | .25   | 113 | .49          | .36   |
| 84 | .63          | .55   | 114 | .42          | .67   |
| 85 | .27          | .73   | 115 | .32          | .84   |
| 86 | .37          | .84   | 116 | .06          | .58   |
| 87 | .94          | 1.42  | 117 | .08          | .22   |
| 88 | .10          | 1.16  | 118 | .39          | .28   |
| 89 | .22          | .65   | 119 | .04          | .22   |
| 90 | .91          | .93   | 120 | .28          | .35   |

RECTANGULAR DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 121 | .48          | .74   | 151 | .31          | 1.33  |
| 122 | .86          | 1.46  | 152 | .77          | 1.31  |
| 123 | .26          | 1.43  | 153 | .15          | .79   |
| 124 | .60          | 1.29  | 154 | .21          | .29   |
| 125 | .92          | 1.48  | 155 | .67          | .52   |
| 126 | .15          | 1.01  | 156 | .43          | .83   |
| 127 | .85          | 1.07  | 157 | .80          | 1.40  |
| 128 | .26          | .83   | 158 | .18          | 1.22  |
| 129 | .14          | .41   | 159 | .60          | 1.10  |
| 130 | .15          | .10   | 160 | .07          | .55   |
| 131 | .80          | .66   | 161 | .71          | .66   |
| 132 | .45          | 1.12  | 162 | .77          | 1.17  |
| 133 | .21          | 1.04  | 163 | .43          | 1.32  |
| 134 | .95          | 1.42  | 164 | .35          | 1.10  |
| 135 | .09          | 1.03  | 165 | .05          | .47   |
| 136 | .62          | .90   | 166 | .87          | .73   |
| 137 | .46          | .83   | 167 | .78          | 1.30  |
| 138 | .45          | .82   | 168 | .86          | 1.85  |
| 139 | .79          | 1.19  | 169 | .14          | 1.40  |
| 140 | .74          | 1.56  | 170 | .82          | 1.25  |
| 141 | .02          | 1.03  | 171 | .03          | .57   |
| 142 | .64          | .83   | 172 | .94          | .82   |
| 143 | .93          | 1.22  | 173 | .19          | .75   |
| 144 | .76          | 1.60  | 174 | .60          | .94   |
| 145 | .20          | 1.23  | 175 | .61          | 1.19  |
| 146 | .00          | .39   | 176 | .89          | 1.64  |
| 147 | .27          | -.04  | 177 | .20          | 1.29  |
| 148 | .87          | .60   | 178 | .41          | .85   |
| 149 | .22          | .90   | 179 | .05          | .22   |
| 150 | .47          | 1.10  | 180 | .22          | -.05  |

RECTANGULAR DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 181 | .43          | .24   | 211 | .72          | .98   |
| 182 | .54          | .83   | 212 | .39          | .97   |
| 183 | .21          | .98   | 213 | .94          | 1.42  |
| 184 | .74          | 1.32  | 214 | .43          | 1.41  |
| 185 | .47          | 1.33  | 215 | .35          | 1.05  |
| 186 | .24          | .91   | 216 | .49          | .80   |
| 187 | .97          | 1.17  | 217 | .41          | .66   |
| 188 | .02          | .76   | 218 | .48          | .73   |
| 189 | .80          | .94   | 219 | .11          | .51   |
| 190 | .66          | 1.23  | 220 | .95          | 1.07  |
| 191 | .96          | 1.75  | 221 | .36          | 1.23  |
| 192 | .37          | 1.56  | 222 | .58          | 1.29  |
| 193 | .85          | 1.52  | 223 | .40          | 1.08  |
| 194 | .24          | .97   | 224 | .69          | 1.11  |
| 195 | .18          | .34   | 225 | .90          | 1.47  |
| 196 | .36          | .15   | 226 | .81          | 1.76  |
| 197 | .52          | .49   | 227 | .35          | 1.41  |
| 198 | .16          | .61   | 228 | .36          | .85   |
| 199 | .17          | .55   | 229 | .45          | .54   |
| 200 | .32          | .56   | 230 | .92          | 1.00  |
| 201 | .02          | .31   | 231 | .83          | 1.61  |
| 202 | .70          | .70   | 232 | .53          | 1.70  |
| 203 | .38          | .96   | 233 | .91          | 1.81  |
| 204 | .36          | 1.00  | 234 | .48          | 1.45  |
| 205 | .98          | 1.50  | 235 | .36          | .87   |
| 206 | .50          | 1.55  | 236 | .55          | .64   |
| 207 | .56          | 1.37  | 237 | .90          | 1.08  |
| 208 | .41          | .99   | 238 | .24          | 1.05  |
| 209 | .83          | 1.10  | 239 | .16          | .67   |
| 210 | .22          | .84   | 240 | .32          | .43   |

RECTANGULAR DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 241 | .72          | .79   | 271 | .58          | .94   |
| 242 | .82          | 1.43  | 272 | .01          | .61   |
| 243 | .74          | 1.84  | 273 | .43          | .54   |
| 244 | .08          | 1.24  | 274 | .36          | .58   |
| 245 | .01          | .27   | 275 | .93          | 1.25  |
| 246 | .69          | .25   | 276 | .65          | 1.68  |
| 247 | .36          | .48   | 277 | .12          | 1.22  |
| 248 | .35          | .73   | 278 | .14          | .47   |
| 249 | .52          | 1.03  | 279 | .84          | .63   |
| 250 | .99          | 1.68  | 280 | .82          | 1.23  |
| 251 | .41          | 1.64  | 281 | .25          | 1.22  |
| 252 | .13          | .92   | 282 | .80          | 1.40  |
| 253 | .25          | .28   | 283 | .24          | 1.05  |
| 254 | .91          | .67   | 284 | .26          | .58   |
| 255 | .18          | .75   | 285 | .85          | .86   |
| 256 | .27          | .70   | 286 | .91          | 1.51  |
| 257 | .44          | .76   | 287 | .03          | 1.17  |
| 258 | .46          | .88   | 288 | .64          | 1.02  |
| 259 | .13          | .64   | 289 | .57          | .99   |
| 260 | .26          | .43   | 290 | .87          | 1.35  |
| 261 | .44          | .53   | 291 | .96          | 1.86  |
| 262 | .67          | .99   | 292 | .15          | 1.39  |
| 263 | .58          | 1.35  | 293 | .94          | 1.35  |
| 264 | .99          | 1.89  | 294 | .78          | 1.44  |
| 265 | .45          | 1.72  | 295 | .28          | 1.05  |
| 266 | .49          | 1.25  | 296 | .59          | .89   |
| 267 | .41          | .76   | 297 | .67          | 1.02  |
| 268 | .06          | .15   | 298 | .23          | .82   |
| 269 | .99          | .70   | 299 | .38          | .67   |
| 270 | .03          | .71   | 300 | .86          | 1.53  |

RECTANGULAR DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t  | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|----|--------------|-------|
| 1  | .00          | .00   | 31 | .84          | 1.14  |
| 2  | .00          | .00   | 32 | .59          | 1.24  |
| 3  | .35          | .35   | 33 | .25          | .93   |
| 4  | .52          | .91   | 34 | .96          | 1.24  |
| 5  | .90          | 1.69  | 35 | .13          | .93   |
| 6  | .13          | 1.44  | 36 | .94          | 1.22  |
| 7  | .23          | .80   | 37 | .14          | .92   |
| 8  | .73          | .75   | 38 | .70          | .98   |
| 9  | .34          | .69   | 39 | .66          | 1.19  |
| 10 | .57          | .88   | 40 | .92          | 1.64  |
| 11 | .35          | .91   | 41 | .79          | 1.88  |
| 12 | .83          | 1.30  | 42 | .88          | 1.97  |
| 13 | .94          | 1.82  | 43 | .90          | 1.94  |
| 14 | .56          | 1.78  | 44 | .54          | 1.49  |
| 15 | .67          | 1.54  | 45 | .12          | .60   |
| 16 | .66          | 1.28  | 46 | .10          | -.13  |
| 17 | .60          | 1.09  | 47 | .02          | -.48  |
| 18 | .77          | 1.20  | 48 | .01          | -.44  |
| 19 | .82          | 1.49  | 49 | .51          | .32   |
| 20 | .60          | 1.52  | 50 | .17          | .78   |
| 21 | .68          | 1.46  | 51 | .53          | 1.20  |
| 22 | .75          | 1.45  | 52 | .40          | 1.25  |
| 23 | .28          | 1.00  | 53 | .08          | .74   |
| 24 | .73          | .96   | 54 | .88          | .94   |
| 25 | .92          | 1.38  | 55 | .06          | .65   |
| 26 | .07          | 1.01  | 56 | .91          | 1.07  |
| 27 | .95          | 1.23  | 57 | .22          | 1.01  |
| 28 | .43          | 1.17  | 58 | .15          | .62   |
| 29 | .78          | 1.33  | 59 | .00          | .07   |
| 30 | .24          | 1.00  | 60 | .59          | .30   |

RECTANGULAR DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|-----|--------------|-------|
| 61 | .39          | .68   | 91  | .30          | .33   |
| 62 | .71          | 1.28  | 92  | .23          | -.05  |
| 63 | .48          | 1.48  | 93  | .50          | .24   |
| 64 | .02          | .88   | 94  | .94          | 1.23  |
| 65 | .67          | .75   | 95  | .36          | 1.57  |
| 66 | .99          | 1.29  | 96  | .68          | 1.67  |
| 67 | .71          | 1.68  | 97  | .42          | 1.32  |
| 68 | .66          | 1.74  | 98  | .87          | 1.32  |
| 69 | .43          | 1.33  | 99  | .30          | .96   |
| 70 | .27          | .69   | 100 | .95          | 1.22  |
| 71 | .39          | .35   | 101 | .37          | 1.13  |
| 72 | .36          | .34   | 102 | .17          | .68   |
| 73 | .29          | .45   | 103 | .32          | .39   |
| 74 | .11          | .41   | 104 | .56          | .58   |
| 75 | .53          | .71   | 105 | .12          | .53   |
| 76 | .88          | 1.41  | 106 | .19          | .42   |
| 77 | .47          | 1.59  | 107 | .04          | .18   |
| 78 | .74          | 1.64  | 108 | .54          | .49   |
| 79 | .52          | 1.37  | 109 | .95          | 1.38  |
| 80 | .80          | 1.33  | 110 | .52          | 1.75  |
| 81 | .90          | 1.54  | 111 | .65          | 1.75  |
| 82 | .18          | 1.07  | 112 | .26          | 1.14  |
| 83 | .55          | .81   | 113 | .42          | .62   |
| 84 | .29          | .54   | 114 | .44          | .44   |
| 85 | .68          | .78   | 115 | .54          | .65   |
| 86 | .22          | .76   | 116 | .76          | 1.22  |
| 87 | .74          | 1.11  | 117 | .92          | 1.87  |
| 88 | .95          | 1.71  | 118 | .04          | 1.37  |
| 89 | .69          | 1.90  | 119 | .49          | .88   |
| 90 | .00          | 1.06  | 120 | .80          | .95   |

RECTANGULAR DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 121 | .04          | .56   | 151 | .83          | 1.91  |
| 122 | .21          | .26   | 152 | .19          | 1.53  |
| 123 | .75          | .70   | 153 | .09          | .62   |
| 124 | .50          | 1.11  | 154 | .49          | .25   |
| 125 | .76          | 1.56  | 155 | .49          | .40   |
| 126 | .06          | 1.11  | 156 | .05          | .34   |
| 127 | .22          | .50   | 157 | .25          | .38   |
| 128 | .59          | .47   | 158 | .05          | .27   |
| 129 | .12          | .34   | 159 | .99          | 1.06  |
| 130 | .94          | 1.03  | 160 | .00          | 1.01  |
| 131 | .49          | 1.42  | 161 | .47          | .94   |
| 132 | .47          | 1.41  | 162 | .55          | .97   |
| 133 | .06          | .76   | 163 | .06          | .57   |
| 134 | .00          | -.01  | 164 | .46          | .51   |
| 135 | .49          | .02   | 165 | .22          | .44   |
| 136 | .78          | .81   | 166 | .10          | .27   |
| 137 | .08          | .96   | 167 | .28          | .32   |
| 138 | .32          | .89   | 168 | .04          | .23   |
| 139 | .90          | 1.30  | 169 | .87          | .93   |
| 140 | .25          | 1.15  | 170 | .49          | 1.37  |
| 141 | .33          | .82   | 171 | .24          | 1.19  |
| 142 | .79          | 1.00  | 172 | .74          | 1.23  |
| 143 | .53          | 1.14  | 173 | .43          | 1.07  |
| 144 | .21          | .86   | 174 | .20          | .64   |
| 145 | .41          | .68   | 175 | .06          | .12   |
| 146 | .26          | .49   | 176 | .18          | -.07  |
| 147 | .21          | .34   | 177 | .20          | .05   |
| 148 | .20          | .28   | 178 | .20          | .30   |
| 149 | .40          | .51   | 179 | .34          | .64   |
| 150 | .87          | 1.26  | 180 | .62          | 1.14  |

RECTANGULAR DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \xi_{t+2}$$

| t   | $\xi_t$ | $x_t$ | t   | $\xi_t$ | $x_t$ |
|-----|---------|-------|-----|---------|-------|
| 181 | .27     | 1.14  | 211 | .80     | .76   |
| 182 | .75     | 1.32  | 212 | .87     | 1.49  |
| 183 | .54     | 1.31  | 213 | .87     | 2.05  |
| 184 | .86     | 1.51  | 214 | .08     | 1.45  |
| 185 | .56     | 1.43  | 215 | .66     | 1.03  |
| 186 | .99     | 1.65  | 216 | .95     | 1.21  |
| 187 | .12     | 1.08  | 217 | .45     | 1.16  |
| 188 | .95     | 1.15  | 218 | .97     | 1.52  |
| 189 | .38     | 1.00  | 219 | .89     | 1.86  |
| 190 | .76     | 1.17* | 220 | .01     | 1.15  |
| 191 | .07     | .76   | 221 | .30     | .45   |
| 192 | .96     | 1.10  | 222 | .00     | -.19  |
| 193 | .33     | 1.08  | 223 | .35     | -.13  |
| 194 | .63     | 1.16  | 224 | .15     | .12   |
| 195 | .10     | .73   | 225 | .22     | .43   |
| 196 | .05     | .15   | 226 | .99     | 1.39  |
| 197 | .60     | .33   | 227 | .70     | 1.97  |
| 198 | .06     | .33   | 228 | .84     | 2.18  |
| 199 | .94     | 1.10  | 229 | .92     | 2.14  |
| 200 | .97     | 1.98  | 230 | .21     | 1.25  |
| 201 | .43     | 1.95  | 231 | .95     | 1.05  |
| 202 | .35     | 1.31  | 232 | .65     | 1.06  |
| 203 | .36     | .63   | 233 | .42     | .96   |
| 204 | .87     | .77   | 234 | .74     | 1.16  |
| 205 | .95     | 1.42  | 235 | .06     | .76   |
| 206 | .83     | 1.93  | 236 | .81     | .95   |
| 207 | .81     | 2.08  | 237 | .80     | 1.39  |
| 208 | .35     | 1.48  | 238 | .14     | 1.10  |
| 209 | .37     | .75   | 239 | .09     | .47   |
| 210 | .43     | .37   | 240 | .28     | .14   |



RECTANGULAR DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 241 | .73          | .60   | 271 | .95          | 1.14  |
| 242 | .04          | .62   | 272 | .01          | .95   |
| 243 | .88          | 1.20  | 273 | .78          | 1.15  |
| 244 | .61          | 1.56  | 274 | .30          | 1.00  |
| 245 | .48          | 1.48  | 275 | .75          | 1.16  |
| 246 | .84          | 1.53  | 276 | .39          | 1.07  |
| 247 | .58          | 1.37  | 277 | .73          | 1.21  |
| 248 | .69          | 1.28  | 278 | .04          | .73   |
| 249 | .39          | .98   | 279 | .52          | .59   |
| 250 | .08          | .39   | 280 | .95          | 1.16  |
| 251 | .68          | .52   | 281 | .56          | 1.49  |
| 252 | .59          | .93   | 282 | .36          | 1.30  |
| 253 | .03          | .74   | 283 | .23          | .77   |
| 254 | .94          | 1.19  | 284 | .72          | .79   |
| 255 | .78          | 1.65  | 285 | .58          | .99   |
| 256 | .10          | 1.21  | 286 | .18          | .80   |
| 257 | .49          | .83   | 287 | .74          | 1.03  |
| 258 | .60          | .78   | 288 | .27          | .92   |
| 259 | .67          | 1.03  | 289 | .35          | .74   |
| 260 | .62          | 1.28  | 290 | .42          | .68   |
| 261 | .48          | 1.27  | 291 | .44          | .75   |
| 262 | .96          | 1.59  | 292 | .96          | 1.38  |
| 263 | .20          | 1.19  | 293 | .47          | 1.54  |
| 264 | .07          | .43   | 294 | .83          | 1.69  |
| 265 | .47          | .23   | 295 | .27          | 1.21  |
| 266 | .75          | .74   | 296 | .75          | 1.07  |
| 267 | .68          | 1.35  | 297 | .89          | 1.34  |
| 268 | .08          | 1.13  | 298 | .71          | 1.54  |
| 269 | .18          | .61   | 299 | .41          | 1.30  |
| 270 | .52          | .51   | 300 | .62          | 1.13  |

## RECTANGULAR DISTRIBUTION

14

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t  | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|----|--------------|-------|
| 1  | .00          | .00   | 31 | .03          | 2.02  |
| 2  | .00          | .00   | 32 | .26          | 1.42  |
| 3  | .80          | .80   | 33 | .61          | 1.44  |
| 4  | .20          | 1.08  | 34 | .54          | 1.62  |
| 5  | .15          | .96   | 35 | .77          | 1.99  |
| 6  | .88          | 1.49  | 36 | .13          | 1.67  |
| 7  | .98          | 2.26  | 37 | .93          | 1.96  |
| 8  | .65          | 2.51  | 38 | .86          | 2.40  |
| 9  | .86          | 2.67  | 39 | .18          | 2.03  |
| 10 | .73          | 2.67  | 40 | .66          | 1.92  |
| 11 | .28          | 2.17  | 41 | .59          | 1.95  |
| 12 | .60          | 1.95  | 42 | .01          | 1.42  |
| 13 | .60          | 1.95  | 43 | .39          | 1.18  |
| 14 | .29          | 1.70  | 44 | .88          | 1.68  |
| 15 | .18          | 1.29  | 45 | .25          | 1.66  |
| 16 | .90          | 1.68  | 46 | .74          | 1.87  |
| 17 | .93          | 2.31  | 47 | .05          | 1.46  |
| 18 | .73          | 2.58  | 48 | .52          | 1.38  |
| 19 | .21          | 2.09  | 49 | .56          | 1.55  |
| 20 | .45          | 1.72  | 50 | .09          | 1.27  |
| 21 | .76          | 1.88  | 51 | .32          | 1.10  |
| 22 | .96          | 2.39  | 52 | .10          | .84   |
| 23 | .94          | 2.82  | 53 | .83          | 1.33  |
| 24 | .53          | 2.65  | 54 | .91          | 2.07  |
| 25 | .57          | 2.36  | 55 | .27          | 1.99  |
| 26 | .96          | 2.54  | 56 | .95          | 2.27  |
| 27 | .43          | 2.33  | 57 | .20          | 1.93  |
| 28 | .65          | 2.20  | 58 | .04          | 1.25  |
| 29 | .82          | 2.35  | 59 | .32          | .97   |
| 30 | .91          | 2.65  | 60 | .28          | .92   |

## RECTANGULAR DISTRIBUTION

15

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|-----|--------------|-------|
| 61 | .55          | 1.20  | 91  | .63          | 1.78  |
| 62 | .48          | 1.45  | 92  | .88          | 2.29  |
| 63 | .51          | 1.61  | 93  | .17          | 1.96  |
| 64 | .74          | 1.92  | 94  | .63          | 1.85  |
| 65 | .07          | 1.54  | 95  | .69          | 2.00  |
| 66 | .42          | 1.33  | 96  | .76          | 2.25  |
| 67 | .74          | 1.63  | 97  | .26          | 1.95  |
| 68 | .58          | 1.87  | 98  | .49          | 1.74  |
| 69 | .73          | 2.13  | 99  | .12          | 1.29  |
| 70 | .61          | 2.20  | 100 | .97          | 1.73  |
| 71 | .85          | 2.42  | 101 | .85          | 2.29  |
| 72 | .45          | 2.24  | 102 | .45          | 2.26  |
| 73 | .74          | 2.24  | 103 | .84          | 2.39  |
| 74 | .47          | 2.07  | 104 | .29          | 2.05  |
| 75 | .75          | 2.15  | 105 | .59          | 1.90  |
| 76 | .49          | 2.07  | 106 | .76          | 2.09  |
| 77 | .08          | 1.52  | 107 | .29          | 1.86  |
| 78 | .23          | 1.10  | 108 | .61          | 1.83  |
| 79 | .05          | .72   | 109 | .17          | 1.48  |
| 80 | .77          | 1.17  | 110 | .10          | 1.02  |
| 81 | .53          | 1.57  | 111 | .35          | .92   |
| 82 | .43          | 1.66  | 112 | .35          | 1.00  |
| 83 | .23          | 1.42  | 113 | .01          | .76   |
| 84 | .17          | 1.07  | 114 | .70          | 1.14  |
| 85 | .82          | 1.47  | 115 | .11          | 1.09  |
| 86 | .08          | 1.32  | 116 | .78          | 1.50  |
| 87 | .17          | 1.01  | 117 | .27          | 1.50  |
| 88 | .28          | .89   | 118 | .88          | 1.91  |
| 89 | .12          | .74   | 119 | .74          | 2.26  |
| 90 | .83          | 1.30  | 120 | .28          | 1.99  |

## RECTANGULAR DISTRIBUTION

16

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 121 | .74          | 2.02  | 151 | .46          | 1.27  |
| 122 | .65          | 2.11  | 152 | .47          | 1.38  |
| 123 | .74          | 2.27  | 153 | .64          | 1.67  |
| 124 | .61          | 2.28  | 154 | .01          | 1.30  |
| 125 | .76          | 2.37  | 155 | .72          | 1.47  |
| 126 | .11          | 1.83  | 156 | .06          | 1.21  |
| 127 | .92          | 2.00  | 157 | .57          | 1.31  |
| 128 | .01          | 1.54  | 158 | .09          | 1.08  |
| 129 | .55          | 1.44  | 159 | .61          | 1.28  |
| 130 | .66          | 1.68  | 160 | .46          | 1.47  |
| 131 | .96          | 2.26  | 161 | .26          | 1.37  |
| 132 | .43          | 2.24  | 162 | .87          | 1.79  |
| 133 | .71          | 2.24  | 163 | .73          | 2.17  |
| 134 | .92          | 2.50  | 164 | .47          | 2.12  |
| 135 | .04          | 1.91  | 165 | .43          | 1.88  |
| 136 | .45          | 1.55  | 166 | .53          | 1.78  |
| 137 | .15          | 1.17  | 167 | .30          | 1.55  |
| 138 | .01          | .73   | 168 | .17          | 1.20  |
| 139 | .38          | .76   | 169 | .59          | 1.33  |
| 140 | .66          | 1.26  | 170 | .83          | 1.85  |
| 141 | .54          | 1.64  | 171 | .09          | 1.60  |
| 142 | .72          | 1.99  | 172 | .98          | 1.97  |
| 143 | .18          | 1.69  | 173 | .95          | 2.52  |
| 144 | .74          | 1.79  | 174 | .66          | 2.62  |
| 145 | .32          | 1.66  | 175 | .80          | 2.65  |
| 146 | .78          | 1.90  | 176 | .55          | 2.44  |
| 147 | .62          | 2.07  | 177 | .95          | 2.60  |
| 148 | .12          | 1.64  | 178 | .90          | 2.83  |
| 149 | .76          | 1.74  | 179 | .68          | 2.76  |
| 150 | .05          | 1.36  | 180 | .36          | 2.27  |

RECTANGULAR DISTRIBUTION

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 181 | .92          | 2.35  | 211 | .49          | 1.47  |
| 182 | .21          | 1.96  | 212 | .35          | 1.45  |
| 183 | .91          | 2.14  | 213 | .70          | 1.71  |
| 184 | .98          | 2.60  | 214 | .34          | 1.65  |
| 185 | .96          | 2.97  | 215 | .72          | 1.85  |
| 186 | .39          | 2.60  | 216 | .06          | 1.46  |
| 187 | .58          | 2.24  | 217 | .23          | 1.10  |
| 188 | .47          | 1.95  | 218 | .70          | 1.38  |
| 189 | .11          | 1.41  | 219 | .29          | 1.41  |
| 190 | .69          | 1.50  | 220 | .52          | 1.51  |
| 191 | .14          | 1.29  | 221 | .21          | 1.31  |
| 192 | .62          | 1.45  | 222 | .94          | 1.79  |
| 193 | .78          | 1.90  | 223 | .14          | 1.62  |
| 194 | .26          | 1.77  | 224 | .87          | 1.91  |
| 195 | .78          | 1.95  | 225 | .52          | 2.00  |
| 196 | .15          | 1.62  | 226 | .71          | 2.14  |
| 197 | .55          | 1.55  | 227 | .64          | 2.20  |
| 198 | .75          | 1.86  | 228 | .69          | 2.26  |
| 199 | .87          | 2.33  | 229 | .02          | 1.64  |
| 200 | .30          | 2.11  | 230 | .18          | 1.10  |
| 201 | .73          | 2.10  | 231 | .72          | 1.34  |
| 202 | .21          | 1.72  | 232 | .54          | 1.63  |
| 203 | .86          | 1.93  | 233 | .86          | 2.11  |
| 204 | .31          | 1.79  | 234 | .23          | 1.89  |
| 205 | .03          | 1.22  | 235 | .54          | 1.76  |
| 206 | .06          | .71   | 236 | .29          | 1.51  |
| 207 | .36          | .71   | 237 | .07          | 1.06  |
| 208 | .71          | 1.26  | 238 | .92          | 1.53  |
| 209 | .03          | 1.14  | 239 | .18          | 1.49  |
| 210 | .58          | 1.29  | 240 | .10          | 1.11  |

## Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \varepsilon_{t+2}$$

| t   | $\varepsilon_t$ | $x_t$ | t   | $\varepsilon_t$ | $x_t$ |
|-----|-----------------|-------|-----|-----------------|-------|
| 241 | .95             | 1.59  | 271 | .87             | 1.46  |
| 242 | .93             | 2.28  | 272 | .28             | 1.54  |
| 243 | .43             | 2.28  | 273 | .62             | 1.70  |
| 244 | .46             | 2.02  | 274 | .79             | 2.05  |
| 245 | .71             | 2.05  | 275 | .72             | 2.30  |
| 246 | .42             | 1.92  | 276 | .95             | 2.65  |
| 247 | .54             | 1.85  | 277 | .59             | 2.59  |
| 248 | .99             | 2.29  | 278 | .27             | 2.06  |
| 249 | .77             | 2.57  | 279 | .92             | 2.19  |
| 250 | .23             | 2.13  | 280 | .02             | 1.67  |
| 251 | .19             | 1.51  | 281 | .12             | 1.10  |
| 252 | .81             | 1.68  | 282 | .36             | .97   |
| 253 | .01             | 1.33  | 283 | .71             | 1.40  |
| 254 | .93             | 1.72  | 284 | .69             | 1.86  |
| 255 | .73             | 2.13  | 285 | .96             | 2.43  |
| 256 | .54             | 2.17  | 286 | .56             | 2.47  |
| 257 | .85             | 2.37  | 287 | .39             | 2.11  |
| 258 | .41             | 2.17  | 288 | .79             | 2.14  |
| 259 | .88             | 2.33  | 289 | .25             | 1.81  |
| 260 | .37             | 2.10  | 290 | .53             | 1.68  |
| 261 | .08             | 1.47  | 291 | .45             | 1.62  |
| 262 | .94             | 1.76  | 292 | .66             | 1.79  |
| 263 | .67             | 2.09  | 293 | .23             | 1.57  |
| 264 | .55             | 2.14  | 294 | .61             | 1.63  |
| 265 | .54             | 2.05  | 295 | .62             | 1.82  |
| 266 | .87             | 2.29  | 296 | .58             | 1.94  |
| 267 | .50             | 2.23  | 297 | .49             | 1.90  |
| 268 | .10             | 1.63  | 298 | .19             | 1.51  |
| 269 | .34             | 1.27  | 299 | .19             | 1.11  |
| 270 | .13             | .95   | 300 | .25             | .92   |

RECTANGULAR DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$ | t  | $\epsilon_t$ | $x_t$ |
|----|--------------|-------|----|--------------|-------|
| 1  | .00          | .00   | 31 | .32          | 1.45  |
| 2  | .00          | .00   | 32 | .29          | 1.30  |
| 3  | .84          | .84   | 33 | .91          | 1.78  |
| 4  | .55          | 1.47  | 34 | .07          | 1.54  |
| 5  | .25          | 1.47  | 35 | .57          | 1.53  |
| 6  | .71          | 1.70  | 36 | .27          | 1.37  |
| 7  | .34          | 1.63  | 37 | .13          | 1.05  |
| 8  | .57          | 1.67  | 38 | .54          | 1.18  |
| 9  | .50          | 1.71  | 39 | .66          | 1.58  |
| 10 | .44          | 1.67  | 40 | .03          | 1.29  |
| 11 | .95          | 2.12  | 41 | .16          | .93   |
| 12 | .64          | 2.32  | 42 | .47          | 1.01  |
| 13 | .16          | 1.84  | 43 | .20          | .98   |
| 14 | .46          | 1.56  | 44 | .16          | .84   |
| 15 | .54          | 1.59  | 45 | .84          | 1.38  |
| 16 | .64          | 1.81  | 46 | .58          | 1.79  |
| 17 | .61          | 1.98  | 47 | .65          | 2.04  |
| 18 | .23          | 1.68  | 48 | .89          | 2.39  |
| 19 | .01          | 1.07  | 49 | .91          | 2.72  |
| 20 | .79          | 1.34  | 50 | .49          | 2.51  |
| 21 | .19          | 1.30  | 51 | .39          | 2.06  |
| 22 | .50          | 1.39  | 52 | .79          | 2.10  |
| 23 | .05          | 1.08  | 53 | .29          | 1.84  |
| 24 | .86          | 1.50  | 54 | .95          | 2.15  |
| 25 | .62          | 1.88  | 55 | .61          | 2.29  |
| 26 | .22          | 1.67  | 56 | .28          | 1.94  |
| 27 | .58          | 1.66  | 57 | .07          | 1.29  |
| 28 | .76          | 1.96  | 58 | .31          | 1.01  |
| 29 | .01          | 1.52  | 59 | .70          | 1.36  |
| 30 | .65          | 1.53  | 60 | .65          | 1.79  |

## RECTANGULAR DISTRIBUTION

20

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \xi_{t+2}$$

| t  | $\xi_t$ | $x_t$ | t   | $\xi_t$ | $x_t$ |
|----|---------|-------|-----|---------|-------|
| 61 | .80     | 2.21  | 91  | .96     | 2.36  |
| 62 | .20     | 1.89  | 92  | .57     | 2.43  |
| 63 | .75     | 1.93  | 93  | .31     | 2.02  |
| 64 | .94     | 2.35  | 94  | .91     | 2.17  |
| 65 | .21     | 2.04  | 95  | .03     | 1.67  |
| 66 | .11     | 1.39  | 96  | .72     | 1.70  |
| 67 | .32     | 1.08  | 97  | .94     | 2.21  |
| 68 | .70     | 1.40  | 98  | .57     | 2.33  |
| 69 | .81     | 1.96  | 99  | .40     | 2.05  |
| 70 | .36     | 1.95  | 100 | .05     | 1.39  |
| 71 | .35     | 1.69  | 101 | .45     | 1.21  |
| 72 | .05     | 1.15  | 102 | .78     | 1.62  |
| 73 | .93     | 1.57  | 103 | .97     | 2.30  |
| 74 | .48     | 1.81  | 104 | .00     | 1.86  |
| 75 | .47     | 1.81  | 105 | .48     | 1.58  |
| 76 | .86     | 2.12  | 106 | .89     | 1.95  |
| 77 | .84     | 2.46  | 107 | .48     | 2.04  |
| 78 | .55     | 2.40  | 108 | .28     | 1.72  |
| 79 | .19     | 1.84  | 109 | .06     | 1.15  |
| 80 | .75     | 1.84  | 110 | .68     | 1.30  |
| 81 | .67     | 2.03  | 111 | .83     | 1.86  |
| 82 | .67     | 2.19  | 112 | .63     | 2.16  |
| 83 | .81     | 2.42  | 113 | .71     | 2.32  |
| 84 | .65     | 2.44  | 114 | .94     | 2.62  |
| 85 | .84     | 2.56  | 115 | .02     | 1.98  |
| 86 | .82     | 2.69  | 116 | .17     | 1.30  |
| 87 | .52     | 2.47  | 117 | .81     | 1.53  |
| 88 | .26     | 1.92  | 118 | .91     | 2.15  |
| 89 | .55     | 1.71  | 119 | .70     | 2.46  |
| 90 | .68     | 1.86  | 120 | .11     | 1.93  |



## RECTANGULAR DISTRIBUTION

21

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$ | t   | $\epsilon_t$ | $x_t$ |
|-----|--------------|-------|-----|--------------|-------|
| 121 | .88          | 2.01  | 151 | .43          | 1.13  |
| 122 | .08          | 1.58  | 152 | .37          | 1.18  |
| 123 | .50          | 1.45  | 153 | .91          | 1.78  |
| 124 | .86          | 1.88  | 154 | .65          | 2.14  |
| 125 | .22          | 1.73  | 155 | .57          | 2.18  |
| 126 | .16          | 1.29  | 156 | .19          | 1.72  |
| 127 | .62          | 1.38  | 157 | .99          | 2.02  |
| 128 | .05          | 1.11  | 158 | .32          | 1.91  |
| 129 | .99          | 1.67  | 159 | .10          | 1.38  |
| 130 | .26          | 1.69  | 160 | .04          | .82   |
| 131 | .33          | 1.49  | 161 | .68          | 1.09  |
| 132 | .38          | 1.36  | 162 | .89          | 1.82  |
| 133 | .38          | 1.31  | 163 | .79          | 2.34  |
| 134 | .85          | 1.77  | 164 | .47          | 2.27  |
| 135 | .55          | 1.99  | 165 | .45          | 1.99  |
| 136 | .89          | 2.35  | 166 | .94          | 2.25  |
| 137 | .95          | 2.74  | 167 | .34          | 2.06  |
| 138 | .48          | 2.54  | 168 | .16          | 1.53  |
| 139 | .58          | 2.26  | 169 | .84          | 1.73  |
| 140 | .63          | 2.15  | 170 | .78          | 2.14  |
| 141 | .62          | 2.14  | 171 | .08          | 1.74  |
| 142 | .89          | 2.41  | 172 | .26          | 1.30  |
| 143 | .42          | 2.23  | 173 | .82          | 1.60  |
| 144 | .89          | 2.37  | 174 | .99          | 2.29  |
| 145 | .97          | 2.73  | 175 | .93          | 2.80  |
| 146 | .17          | 2.23  | 176 | .84          | 2.96  |
| 147 | .65          | 2.00  | 177 | .35          | 2.48  |
| 148 | .65          | 2.03  | 178 | .08          | 1.64  |
| 149 | .20          | 1.67  | 179 | .82          | 1.70  |
| 150 | .15          | 1.20  | 180 | .07          | 1.37  |

## RECTANGULAR DISTRIBUTION

22

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \varepsilon_{t+2}$$

| t   | $\varepsilon_t$ | $x_t$ | t   | $\varepsilon_t$ | $x_t$ |
|-----|-----------------|-------|-----|-----------------|-------|
| 181 | .76             | 1.60  | 211 | .40             | 1.20  |
| 182 | .07             | 1.32  | 212 | .54             | 1.42  |
| 183 | .59             | 1.39  | 213 | .24             | 1.33  |
| 184 | .11             | 1.15  | 214 | .39             | 1.28  |
| 185 | .10             | .82   | 215 | .91             | 1.81  |
| 186 | .48             | .96   | 216 | .11             | 1.61  |
| 187 | .84             | 1.61  | 217 | .38             | 1.40  |
| 188 | .75             | 2.13  | 218 | .80             | 1.73  |
| 189 | .79             | 2.45  | 219 | .46             | 1.83  |
| 190 | .46             | 2.28  | 220 | .87             | 2.18  |
| 191 | .28             | 1.80  | 221 | .01             | 1.69  |
| 192 | .89             | 2.00  | 222 | .45             | 1.42  |
| 193 | .47             | 2.02  | 223 | .24             | 1.19  |
| 194 | .85             | 2.27  | 224 | .11             | .89   |
| 195 | .40             | 2.11  | 225 | .01             | .55   |
| 196 | .31             | 1.72  | 226 | .84             | 1.13  |
| 197 | .90             | 1.98  | 227 | .17             | 1.23  |
| 198 | .28             | 1.82  | 228 | .55             | 1.41  |
| 199 | .16             | 1.36  | 229 | .75             | 1.81  |
| 200 | .61             | 1.42  | 230 | .71             | 2.13  |
| 201 | .06             | 1.13  | 231 | .28             | 1.88  |
| 202 | .58             | 1.26  | 232 | .49             | 1.70  |
| 203 | .31             | 1.29  | 233 | .30             | 1.46  |
| 204 | .84             | 1.76  | 234 | .69             | 1.65  |
| 205 | .08             | 1.51  | 235 | .03             | 1.30  |
| 206 | .64             | 1.58  | 236 | .78             | 1.55  |
| 207 | .74             | 1.92  | 237 | .46             | 1.70  |
| 208 | .02             | 1.51  | 238 | .65             | 1.90  |
| 209 | .43             | 1.31  | 239 | .45             | 1.86  |
| 210 | .28             | 1.17  | 240 | .50             | 1.79  |

RECTANGULAR DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \xi_{t+2}$$

| t   | $\xi_t$ | $x_t$ | t   | $\xi_t$ | $x_t$ |
|-----|---------|-------|-----|---------|-------|
| 241 | .51     | 1.76  | 271 | .57     | 1.90  |
| 242 | .59     | 1.84  | 272 | .83     | 2.14  |
| 243 | .25     | 1.59  | 273 | .59     | 2.21  |
| 244 | .31     | 1.34  | 274 | .57     | 2.14  |
| 245 | .41     | 1.29  | 275 | .87     | 2.35  |
| 246 | .06     | .98   | 276 | .25     | 2.01  |
| 247 | .58     | 1.16  | 277 | .75     | 2.02  |
| 248 | .60     | 1.53  | 278 | .43     | 1.90  |
| 249 | .74     | 1.95  | 279 | .43     | 1.73  |
| 250 | .23     | 1.75  | 280 | .18     | 1.35  |
| 251 | .84     | 1.97  | 281 | .49     | 1.32  |
| 252 | .38     | 1.89  | 282 | .90     | 1.86  |
| 253 | .82     | 2.11  | 283 | .42     | 1.96  |
| 254 | .10     | 1.69  | 284 | .39     | 1.78  |
| 255 | .53     | 1.55  | 285 | .56     | 1.75  |
| 256 | .91     | 2.00  | 286 | .36     | 1.62  |
| 257 | .64     | 2.25  | 287 | .67     | 1.77  |
| 258 | .69     | 2.35  | 288 | .52     | 1.85  |
| 259 | .10     | 1.79  | 289 | .05     | 1.39  |
| 260 | .56     | 1.60  | 290 | .63     | 1.43  |
| 261 | .68     | 1.79  | 291 | .71     | 1.78  |
| 262 | .34     | 1.70  | 292 | .11     | 1.51  |
| 263 | .83     | 1.98  | 293 | .73     | 1.67  |
| 264 | .31     | 1.83  | 294 | .95     | 2.23  |
| 265 | .20     | 1.41  | 295 | .94     | 2.73  |
| 266 | .39     | 1.24  | 296 | .69     | 2.77  |
| 267 | .58     | 1.42  | 297 | .43     | 2.37  |
| 268 | .59     | 1.68  | 298 | .47     | 2.00  |
| 269 | .92     | 2.20  | 299 | .26     | 1.57  |
| 270 | .30     | 2.04  | 300 | .80     | 1.78  |

RECTANGULAR DISTRIBUTION

$$C_r = \sum_{t=1}^{N-r} x_t x_{t+r}$$

| r  | Series No. 1 | Series No. 2 | Series No. 3 | Series No. 4 |
|----|--------------|--------------|--------------|--------------|
| 0  | 340.99       | 366.17       | 1004.49      | 981.59       |
| 1  | 318.83       | 343.11       | 988.70       | 964.25       |
| 2  | 284.99       | 305.49       | 967.26       | 941.63       |
| 3  | 262.91       | 275.77       | 949.06       | 926.91       |
| 4  | 260.41       | 265.78       | 935.35       | 918.99       |
| 5  | 270.01       | 271.14       | 926.76       | 913.34       |
| 6  | 281.44       | 280.24       | 921.32       | 907.25       |
| 7  | 284.31       | 285.54       | 919.02       | 902.22       |
| 8  | 280.13       | 284.30       | 917.38       | 899.41       |
| 9  | 274.42       | 280.20       | 916.55       | 895.28       |
| 10 | 270.18       | 280.30       | 914.71       | 890.82       |
| 11 | 268.72       | 284.67       | 909.46       | 888.86       |
| 12 | 267.02       | 287.92       | 900.80       | 887.98       |
| 13 | 264.56       | 288.19       | 894.41       | 885.60       |
| 14 | 262.41       | 284.00       | 889.39       | 880.71       |
| 15 | 263.97       | 276.51       | 885.60       | 877.48       |
| 16 | 267.55       | 267.39       | 881.41       | 875.65       |
| 17 | 271.45       | 263.50       | 876.88       | 873.39       |
| 18 | 271.77       | 267.52       | 873.18       | 871.89       |
| 19 | 269.20       | 274.82       | 870.25       | 871.26       |
| 20 | 264.28       | 277.49       | 867.82       | 872.98       |
| 21 | 259.82       | 274.09       | 862.79       | 876.26       |
| 22 | 257.24       | 267.02       | 855.46       | 873.40       |
| 23 | 256.95       | 258.49       | 849.13       | 865.90       |
| 24 | 258.18       | 253.68       | 842.44       | 859.05       |
| 25 | 258.03       | 256.97       | 837.34       | 854.41       |
| 26 | 255.50       | 262.47       | 835.75       | 851.24       |
| 27 | 252.97       | 265.40       | 834.70       | 848.19       |
| 28 | 254.29       | 262.83       | 834.48       | 843.82       |
| 29 | 254.56       | 258.93       | 832.96       | 839.20       |
| 30 | 253.08       | 254.10       | 830.99       | 837.19       |

NORMAL DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \xi_{t+2}$$

| t  | $\xi_t$ | $x_t$  | t  | $\xi_t$ | $x_t$  |
|----|---------|--------|----|---------|--------|
| 1  | - 4.81  | - 4.81 | 31 | 1.93    | 36.63  |
| 2  | - 5.75  | -11.04 | 32 | - .06   | 13.66  |
| 3  | - .99   | -10.24 | 33 | 3.03    | - 3.92 |
| 4  | 16.18   | 11.54  | 34 | - .02   | -12.53 |
| 5  | .73     | 19.56  | 35 | - 1.63  | -13.06 |
| 6  | 2.16    | 16.76  | 36 | - .23   | - 7.08 |
| 7  | - 5.09  | 1.61   | 37 | - 3.20  | - 3.15 |
| 8  | - 7.19  | -15.48 | 38 | .43     | 1.21   |
| 9  | - 2.97  | -20.97 | 39 | 7.54    | 10.76  |
| 10 | - 8.68  | -22.46 | 40 | .67     | 11.78  |
| 11 | 3.20    | - 8.93 | 41 | .43     | 6.93   |
| 12 | -20.99  | -17.33 | 42 | -18.27  | -17.72 |
| 13 | 16.90   | 3.20   | 43 | .36     | -23.29 |
| 14 | -11.13  | 2.79   | 44 | - 2.61  | -17.60 |
| 15 | 6.25    | 7.40   | 45 | - 5.24  | -10.63 |
| 16 | 23.37   | 29.84  | 46 | - 9.28  | -10.41 |
| 17 | .62     | 29.00  | 47 | -13.73  | -18.80 |
| 18 | .11     | 14.11  | 48 | - 2.07  | -16.50 |
| 19 | 5.23    | 3.35   | 49 | - 1.01  | - 7.88 |
| 20 | - 4.03  | - 8.81 | 50 | - 2.89  | - 1.66 |
| 21 | -17.21  | -28.91 | 51 | 7.16    | 10.06  |
| 22 | 10.92   | -15.59 | 52 | 4.67    | 16.74  |
| 23 | - 8.47  | - 8.27 | 53 | - 5.69  | 6.68   |
| 24 | - 5.62  | - 5.37 | 54 | 11.50   | 8.81   |
| 25 | - 4.59  | - 5.54 | 55 | - 3.60  | 2.08   |
| 26 | - 5.10  | - 7.97 | 56 | 4.04    | 1.04   |
| 27 | - 4.15  | - 9.60 | 57 | 1.99    | 1.88   |
| 28 | 6.86    | 1.08   | 58 | .82     | 2.27   |
| 29 | 16.41   | 23.36  | 59 | -17.57  | -16.20 |
| 30 | 19.24   | 44.29  | 60 | 1.15    | -18.03 |

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|-----|--------------|--------|
| 61 | 9.16         | -.95   | 91  | -17.60       | -47.51 |
| 62 | - 9.78       | -.01   | 92  | -.20         | -35.14 |
| 63 | - 1.93       | - 1.37 | 93  | 8.05         | - 2.09 |
| 64 | 18.87        | 17.37  | 94  | 13.33        | 32.11  |
| 65 | 3.31         | 23.24  | 95  | 5.46         | 42.03  |
| 66 | - 3.27       | 11.87  | 96  | - 8.56       | 18.40  |
| 67 | 14.46        | 13.58  | 97  | 4.23         | -.75   |
| 68 | 10.95        | 18.77  | 98  | 20.25        | 8.38   |
| 69 | 3.64         | 16.14  | 99  | 1.97         | 11.64  |
| 70 | 6.12         | 12.61  | 100 | 13.01        | 20.78  |
| 71 | 5.28         | 9.47   | 101 | - 3.75       | 12.13  |
| 72 | - 5.16       | - 2.31 | 102 | 1.67         | 2.54   |
| 73 | .57          | - 7.65 | 103 | - 4.74       | - 9.23 |
| 74 | - 2.36       | - 9.39 | 104 | 8.57         | - 3.10 |
| 75 | -.83         | - 6.57 | 105 | - 5.22       | - 3.09 |
| 76 | - 9.90       | -11.50 | 106 | -.29         | - 1.83 |
| 77 | 6.70         | - 2.01 | 107 | -14.32       | -14.48 |
| 78 | 2.75         | 7.44   | 108 | -27.45       | -42.28 |
| 79 | 9.19         | 18.58  | 109 | - 2.01       | -39.83 |
| 80 | - 1.28       | 14.70  | 110 | 7.61         | -10.83 |
| 81 | - 1.41       | 3.61   | 111 | -20.80       | - 8.81 |
| 82 | 4.74         | -.11   | 112 | - 6.65       | - 9.84 |
| 83 | - 7.05       | - 9.34 | 113 | 18.21        | 12.68  |
| 84 | 21.83        | 11.63  | 114 | - 1.51       | 18.34  |
| 85 | 15.31        | 33.70  | 115 | -.23         | 12.33  |
| 86 | 18.90        | 48.99  | 116 | 12.83        | 15.39  |
| 87 | 10.84        | 44.51  | 117 | 6.84         | 16.37  |
| 88 | 5.86         | 25.43  | 118 | - 4.22       | 4.56   |
| 89 | - 4.33       | - 3.07 | 119 | - 4.95       | - 9.75 |
| 90 | -10.22       | -28.86 | 120 | 9.24         | - 4.23 |

NORMAL DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \xi_{t+2}$$

| t   | $\xi_t$ | $x_t$  | t   | $\xi_t$ | $x_t$  |
|-----|---------|--------|-----|---------|--------|
| 121 | 2.92    | 4.12   | 151 | -30.98  | -45.26 |
| 122 | - 3.69  | 3.38   | 152 | 2.35    | -33.53 |
| 123 | - .84   | .41    | 153 | 5.49    | - 4.23 |
| 124 | - 3.19  | - 4.77 | 154 | - 9.19  | 6.28   |
| 125 | 1.90    | - 3.60 | 155 | 6.61    | 16.06  |
| 126 | 8.08    | 6.98   | 156 | - 6.98  | 6.92   |
| 127 | -16.37  | - 6.53 | 157 | -13.94  | -15.97 |
| 128 | -10.79  | -22.16 | 158 | 5.61    | -16.11 |
| 129 | 4.81    | -15.65 | 159 | - 1.38  | - 9.52 |
| 130 | 10.06   | 6.14   | 160 | -20.78  | -21.58 |
| 131 | - 3.65  | 12.49  | 161 | -10.27  | -28.30 |
| 132 | -19.63  | - 9.57 | 162 | 9.74    | - 8.44 |
| 133 | .95     | -17.07 | 163 | -10.07  | - 2.37 |
| 134 | - 5.78  | -18.82 | 164 | 4.22    | 6.67   |
| 135 | 3.52    | - 6.94 | 165 | 9.22    | 17.98  |
| 136 | 16.45   | 20.11  | 166 | .07     | 15.85  |
| 137 | 1.19    | 27.47  | 167 | - 5.50  | 1.15   |
| 138 | -17.70  | .45    | 168 | - 2.92  | -11.16 |
| 139 | 10.44   | - 5.54 | 169 | 4.61    | - 8.36 |
| 140 | -12.44  | -18.80 | 170 | - 9.83  | -12.33 |
| 141 | - 4.24  | -21.60 | 171 | - .32   | - 8.86 |
| 142 | 4.02    | - 8.46 | 172 | 1.90    | - .45  |
| 143 | - .08   | 3.57   | 173 | -12.21  | - 7.39 |
| 144 | - 5.46  | 3.55   | 174 | 2.68    | - 5.18 |
| 145 | 21.94   | 23.71  | 175 | - 2.28  | - 3.55 |
| 146 | 10.97   | 34.92  | 176 | - 9.02  | - 9.82 |
| 147 | - .12   | 24.06  | 177 | - .71   | - 9.38 |
| 148 | - 7.57  | - 2.05 | 178 | 5.33    | .90    |
| 149 | - 2.00  | -18.70 | 179 | 6.47    | 13.09  |
| 150 | - 3.84  | -23.18 | 180 | - 8.36  | 5.50   |

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \xi_{t+2}$$

| t   | $\xi_t$ | $x_t$  | t   | $\xi_t$ | $x_t$  |
|-----|---------|--------|-----|---------|--------|
| 181 | 3.03    | 1.23   | 211 | - 1.15  | - .57  |
| 182 | -25.01  | -26.96 | 212 | 1.31    | 2.14   |
| 183 | - 3.59  | -33.99 | 213 | 1.08    | 3.77   |
| 184 | 1.71    | -19.50 | 214 | - 7.83  | - 4.96 |
| 185 | 1.83    | .77    | 215 | 20.34   | 12.62  |
| 186 | 6.71    | 19.26  | 216 | - 4.87  | 11.99  |
| 187 | - 1.86  | 18.87  | 217 | - 4.59  | 1.03   |
| 188 | -11.65  | - 2.45 | 218 | - 8.47  | -14.53 |
| 189 | 2.26    | -11.76 | 219 | - 7.62  | -24.22 |
| 190 | - 1.06  | -12.53 | 220 | - .97   | -18.89 |
| 191 | .15     | - 6.57 | 221 | 11.59   | 5.34   |
| 192 | 1.52    | 1.81   | 222 | 1.84    | 19.04  |
| 193 | -15.38  | - 9.45 | 223 | 15.13   | 32.87  |
| 194 | - 8.25  | -19.74 | 224 | -19.51  | 5.23   |
| 195 | 8.99    | - 7.05 | 225 | -10.86  | -24.83 |
| 196 | 2.65    | 6.73   | 226 | - 3.97  | -34.42 |
| 197 | - 5.89  | 5.74   | 227 | - 8.63  | -31.59 |
| 198 | -16.80  | -14.53 | 228 | - 2.70  | -16.80 |
| 199 | - 9.37  | -28.79 | 229 | 3.48    | 3.95   |
| 200 | 8.11    | -14.84 | 230 | - 7.12  | 7.31   |
| 201 | - 9.24  | - 8.29 | 231 | 6.96    | 12.63  |
| 202 | 2.06    | 1.84   | 232 | -18.85  | - 9.35 |
| 203 | 3.84    | 10.83  | 233 | - 1.49  | -19.36 |
| 204 | -10.23  | .58    | 234 | - 8.64  | -24.33 |
| 205 | 12.93   | 7.07   | 235 | 3.09    | -12.05 |
| 206 | - 2.19  | 5.24   | 236 | 11.65   | 12.99  |
| 207 | 2.13    | 3.65   | 237 | - .48   | 21.04  |
| 208 | 5.02    | 5.90   | 238 | 12.23   | 27.58  |
| 209 | - 9.73  | - 5.43 | 239 | 4.22    | 21.94  |
| 210 | 7.07    | - 2.44 | 240 | - 7.81  | - .23  |



NORMAL DISTRIBUTION

Series No. 1

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 241 | 12.30        | - 1.11 | 271 | 22.05        | 40.57  |
| 242 | -15.03       | -16.11 | 272 | - 1.12       | 34.01  |
| 243 | -11.11       | -28.16 | 273 | - 1.19       | 11.88  |
| 244 | - 2.99       | -24.30 | 274 | 13.54        | 6.20   |
| 245 | - 2.05       | -11.88 | 275 | 15.93        | 15.62  |
| 246 | .90          | 2.41   | 276 | - 7.42       | 6.04   |
| 247 | -11.90       | - 2.12 | 277 | 13.70        | 10.97  |
| 248 | 10.21        | 6.43   | 278 | - 9.14       | - .69  |
| 249 | - 8.02       | .32    | 279 | - 8.35       | -15.69 |
| 250 | - 9.95       | -13.46 | 280 | 10.00        | - 6.85 |
| 251 | - 6.17       | -21.17 | 281 | 8.47         | 10.34  |
| 252 | 12.22        | - 2.99 | 282 | 2.58         | 18.06  |
| 253 | 15.08        | 24.49  | 283 | 19.12        | 32.79  |
| 254 | 9.73         | 38.46  | 284 | 4.68         | 29.91  |
| 255 | 20.09        | 47.71  | 285 | 3.87         | 17.10  |
| 256 | - 1.09       | 28.31  | 286 | 1.23         | 2.09   |
| 257 | - 2.94       | - .43  | 287 | - 2.01       | - 9.97 |
| 258 | 2.62         | -14.84 | 288 | - 9.19       | -21.41 |
| 259 | -18.75       | -34.81 | 289 | -10.57       | -28.14 |
| 260 | - 5.15       | -34.54 | 290 | .59          | -17.51 |
| 261 | 20.17        | 3.07   | 291 | - 4.61       | - 6.99 |
| 262 | 12.30        | 36.40  | 292 | 5.35         | 8.17   |
| 263 | - 9.12       | 29.08  | 293 | - 1.16       | 12.02  |
| 264 | 1.73         | 11.88  | 294 | - 2.18       | 6.14   |
| 265 | -10.51       | -14.89 | 295 | - .86        | - 1.32 |
| 266 | - .48        | -23.99 | 296 | 8.92         | 3.79   |
| 267 | .86          | -16.60 | 297 | 12.17        | 17.13  |
| 268 | - 3.89       | - 7.76 | 298 | 13.89        | 30.46  |
| 269 | - 3.27       | - 1.85 | 299 | 9.21         | 32.44  |
| 270 | 13.21        | 15.83  | 300 | - 4.62       | 12.78  |

NORMAL DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t  | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|----|--------------|--------|
| 1  | 2.97         | 2.97   | 31 | -16.65       | -14.29 |
| 2  | 12.05        | 15.32  | 32 | - 6.30       | -30.53 |
| 3  | 2.93         | 18.00  | 33 | - 4.69       | -29.70 |
| 4  | - 2.94       | 7.67   | 34 | - .13        | -14.48 |
| 5  | 6.46         | 4.10   | 35 | - 1.43       | .46    |
| 6  | 7.03         | 6.94   | 36 | 5.82         | 15.02  |
| 7  | 11.53        | 16.70  | 37 | - .97        | 15.27  |
| 8  | 4.91         | 19.12  | 38 | 13.13        | 20.92  |
| 9  | - 4.40       | 6.61   | 39 | - .86        | 12.99  |
| 10 | - 3.47       | - 7.67 | 40 | -11.81       | -10.07 |
| 11 | - 8.25       | -20.66 | 41 | 8.88         | - 9.99 |
| 12 | - 2.87       | -21.00 | 42 | - 2.86       | - 7.81 |
| 13 | 5.75         | - 4.95 | 43 | 11.12        | 8.52   |
| 14 | .33          | 7.48   | 44 | 3.84         | 17.90  |
| 15 | - 4.20       | 7.00   | 45 | 5.12         | 19.70  |
| 16 | 16.07        | 19.28  | 46 | - 1.59       | 9.34   |
| 17 | - 1.35       | 15.66  | 47 | 3.74         | 2.19   |
| 18 | 4.61         | 10.27  | 48 | -15.88       | -19.07 |
| 19 | - 2.00       | - .10  | 49 | - 9.37       | -31.66 |
| 20 | -17.40       | -23.67 | 50 | - 8.90       | -32.29 |
| 21 | 16.71        | - 9.27 | 51 | 10.86        | - 5.66 |
| 22 | - 8.81       | - 4.81 | 52 | - 4.98       | 8.16   |
| 23 | - .24        | .03    | 53 | - 4.98       | 7.40   |
| 24 | - .86        | 2.06   | 54 | 4.99         | 8.23   |
| 25 | - 1.86       | .39    | 55 | - 5.32       | - .71  |
| 26 | 1.01         | .20    | 56 | -13.30       | -19.02 |
| 27 | 13.19        | 13.18  | 57 | - 5.49       | -25.98 |
| 28 | 5.86         | 20.24  | 58 | -11.01       | -28.18 |
| 29 | 7.71         | 22.06  | 59 | -11.10       | -26.51 |
| 30 | 2.05         | 14.18  | 60 | - 9.37       | -21.62 |

NORMAL DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|-----|--------------|--------|
| 61 | - 8.85       | -16.72 | 91  | - 8.86       | - .85  |
| 62 | -14.36       | -19.78 | 92  | 3.89         | - 4.78 |
| 63 | .60          | -11.13 | 93  | - 2.42       | - 7.17 |
| 64 | - 1.97       | - 2.34 | 94  | .86          | - 4.16 |
| 65 | - 8.60       | - 4.49 | 95  | 12.32        | 12.04  |
| 66 | 5.99         | 2.45   | 96  | 3.24         | 18.98  |
| 67 | - 1.50       | 3.89   | 97  | 7.73         | 21.39  |
| 68 | 6.91         | 9.72   | 98  | -13.32       | - 1.18 |
| 69 | - 5.90       | 2.46   | 99  | 18.41        | 4.28   |
| 70 | 14.93        | 11.81  | 100 | -13.54       | - 8.12 |
| 71 | 9.14         | 20.65  | 101 | -18.63       | -30.13 |
| 72 | 6.99         | 22.62  | 102 | 3.47         | -24.80 |
| 73 | 17.85        | 30.34  | 103 | -24.61       | -33.81 |
| 74 | 18.33        | 38.13  | 104 | 14.13        | - 8.18 |
| 75 | 10.22        | 33.96  | 105 | 13.60        | 24.89  |
| 76 | - 2.08       | 12.40  | 106 | - 3.53       | 28.76  |
| 77 | - 3.46       | -10.20 | 107 | 16.70        | 33.41  |
| 78 | 4.43         | -14.23 | 108 | 11.88        | 31.37  |
| 79 | - 3.78       | -13.31 | 109 | 5.13         | 19.59  |
| 80 | - 2.78       | - 8.88 | 110 | 18.09        | 20.82  |
| 81 | -11.25       | -13.03 | 111 | - 5.91       | 5.24   |
| 82 | 15.58        | 6.58   | 112 | - .91        | - 7.64 |
| 83 | - 9.56       | 5.50   | 113 | - 1.16       | -12.70 |
| 84 | - 1.26       | .84    | 114 | - 3.51       | -12.90 |
| 85 | - 9.64       | -12.02 | 115 | 4.72         | - 1.85 |
| 86 | 10.70        | - 3.02 | 116 | - 7.38       | - 1.68 |
| 87 | 4.17         | 8.06   | 117 | 2.12         | 1.38   |
| 88 | 3.62         | 14.30  | 118 | 1.61         | 4.14   |
| 89 | - .60        | 10.29  | 119 | - 9.98       | - 6.26 |
| 90 | 10.15        | 12.89  | 120 | 12.78        | 3.41   |

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 121 | -.22         | 7.29   | 151 | 8.68         | 9.29   |
| 122 | -11.46       | - 5.49 | 152 | -10.03       | - 2.46 |
| 123 | .76          | - 9.65 | 153 | 3.62         | - 4.66 |
| 124 | 4.33         | - 3.00 | 154 | - 3.14       | - 6.79 |
| 125 | - 7.81       | - 5.32 | 155 | 10.06        | 5.39   |
| 126 | -13.29       | -17.34 | 156 | -13.72       | - 3.72 |
| 127 | 16.88        | 1.00   | 157 | -.24         | - 7.56 |
| 128 | -16.59       | - 5.09 | 158 | -14.96       | -21.05 |
| 129 | - 8.75       | -14.95 | 159 | 9.00         | - 9.62 |
| 130 | 5.16         | - 8.24 | 160 | - 6.45       | - 4.40 |
| 131 | 2.76         | 2.67   | 161 | .34          | 1.27   |
| 132 | -16.24       | - 8.36 | 162 | 7.04         | 11.08  |
| 133 | -14.13       | -24.93 | 163 | - 4.80       | 6.63   |
| 134 | 7.14         | -15.26 | 164 | 14.57        | 15.21  |
| 135 | -12.42       | -14.25 | 165 | -12.35       | .40    |
| 136 | -.12         | - 6.64 | 166 | - 3.50       | -12.19 |
| 137 | -.02         | 1.23   | 167 | - 8.56       | -22.21 |
| 138 | 1.06         | 6.39   | 168 | 1.42         | -15.70 |
| 139 | 8.29         | 14.58  | 169 | 2.97         | -.97   |
| 140 | 11.35        | 23.56  | 170 | - 8.26       | .09    |
| 141 | 10.21        | 27.38  | 171 | 7.39         | 8.07   |
| 142 | 14.55        | 30.53  | 172 | - 6.10       | 2.73   |
| 143 | 3.73         | 20.88  | 173 | 5.80         | 3.96   |
| 144 | 6.09         | 10.74  | 174 | -12.36       | - 9.64 |
| 145 | 6.78         | 6.06   | 175 | 11.23        | - 1.75 |
| 146 | -10.78       | -10.55 | 176 | - 6.03       | - 2.18 |
| 147 | 8.22         | - 7.03 | 177 | 7.45         | 6.10   |
| 148 | 5.60         | 4.20   | 178 | - 8.76       | - .74  |
| 149 | - 1.78       | 7.06   | 179 | 3.37         | - 1.10 |
| 150 | -.84         | 4.41   | 180 | 18.44        | 17.67  |

NORMAL DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 181 | -11.11       | 8.99   | 211 | -18.57       | -14.73 |
| 182 | 15.55        | 14.84  | 212 | 9.35         | - 3.12 |
| 183 | 6.12         | 17.05  | 213 | -18.30       | -12.89 |
| 184 | - 4.68       | 5.18   | 214 | 7.31         | - 5.00 |
| 185 | - 3.68       | - 8.21 | 215 | 3.43         | 5.66   |
| 186 | .40          | -11.74 | 216 | - 2.78       | 6.45   |
| 187 | -13.45       | -21.43 | 217 | 10.41        | 14.11  |
| 188 | 18.03        | 1.50   | 218 | 8.64         | 20.29  |
| 189 | 1.79         | 16.30  | 219 | 10.48        | 24.33  |
| 190 | 14.00        | 31.03  | 220 | 2.49         | 17.08  |
| 191 | -17.40       | 6.95   | 221 | - 7.41       | - 3.22 |
| 192 | - 7.37       | -18.34 | 222 | 12.20        | - 1.59 |
| 193 | .96          | -23.38 | 223 | -16.39       | -16.21 |
| 194 | 10.64        | - 4.08 | 224 | - 2.01       | -18.89 |
| 195 | - 2.93       | 6.61   | 225 | - 6.87       | -17.92 |
| 196 | 2.72         | 12.44  | 226 | 4.73         | - 3.65 |
| 197 | 1.60         | 11.31  | 227 | 17.46        | 24.19  |
| 198 | -13.52       | - 8.54 | 228 | - 7.16       | 21.64  |
| 199 | 4.77         | -11.41 | 229 | 18.36        | 27.65  |
| 200 | 6.59         | - .84  | 230 | -36.42       | -18.98 |
| 201 | 2.53         | 8.46   | 231 | -19.54       | -57.01 |
| 202 | 1.88         | 11.69  | 232 | - 3.26       | -54.58 |
| 203 | 4.96         | 12.74  | 233 | - 3.78       | -29.61 |
| 204 | - 2.96       | 4.04   | 234 | -19.23       | -19.05 |
| 205 | 2.20         | - 1.00 | 235 | - 6.07       | - 9.26 |
| 206 | 7.30         | 3.78   | 236 | - 9.40       | - 8.16 |
| 207 | - 3.13       | 1.63   | 237 | 17.00        | 13.58  |
| 208 | -17.00       | -17.48 | 238 | 11.73        | 31.57  |
| 209 | 2.43         | -17.78 | 239 | 3.29         | 29.87  |
| 210 | 2.86         | - 6.21 | 240 | .14          | 14.06  |

NORMAL DISTRIBUTION

Series No. 2

$$x_{t+2} = 1.1 x_{t+1} - .6 x_t + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 241 | - 9.75       | -12.20 | 271 | - 9.00       | - 8.19 |
| 242 | 4.73         | -17.13 | 272 | 10.03        | - 1.76 |
| 243 | -11.44       | -22.96 | 273 | - 7.41       | - 4.44 |
| 244 | 16.63        | 1.65   | 274 | - .23        | - 4.05 |
| 245 | -10.86       | 4.74   | 275 | 11.29        | 9.49   |
| 246 | - 2.81       | 1.41   | 276 | - 1.78       | 11.09  |
| 247 | -14.05       | -15.34 | 277 | - 5.81       | .70    |
| 248 | 2.81         | -14.91 | 278 | 4.04         | - 1.84 |
| 249 | -10.07       | -17.27 | 279 | 5.85         | 3.41   |
| 250 | 16.35        | 6.30   | 280 | 3.05         | 7.90   |
| 251 | 10.69        | 27.98  | 281 | - 6.51       | .13    |
| 252 | -17.04       | 9.96   | 282 | 20.31        | 15.71  |
| 253 | - 7.63       | -13.46 | 283 | 17.96        | 35.16  |
| 254 | 2.31         | -18.48 | 284 | -16.68       | 12.57  |
| 255 | 2.18         | -10.07 | 285 | -13.57       | -20.84 |
| 256 | 15.93        | 15.94  | 286 | - .72        | -31.18 |
| 257 | 9.77         | 33.34  | 287 | 7.75         | -14.05 |
| 258 | 18.87        | 45.98  | 288 | - 2.23       | 1.02   |
| 259 | 4.89         | 35.47  | 289 | -13.54       | - 3.99 |
| 260 | - 2.09       | 9.34   | 290 | 1.87         | - 3.13 |
| 261 | 17.83        | 6.82   | 291 | - 6.20       | - 7.25 |
| 262 | - 4.47       | - 2.57 | 292 | .03          | - 6.07 |
| 263 | 11.53        | 4.61   | 293 | - 8.03       | -10.36 |
| 264 | - 5.08       | 1.53   | 294 | -16.18       | -23.94 |
| 265 | 11.58        | 10.49  | 295 | -11.79       | -31.90 |
| 266 | - 5.13       | 5.49   | 296 | 4.07         | -16.66 |
| 267 | - 2.81       | - 3.06 | 297 | 18.29        | 19.10  |
| 268 | 3.91         | - 2.75 | 298 | -13.78       | 17.23  |
| 269 | 8.33         | 7.14   | 299 | 18.30        | 25.79  |
| 270 | - 4.87       | 4.63   | 300 | - 1.80       | 16.23  |

NORMAL DISTRIBUTION

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \xi_{t+2}$$

| t  | $\xi_t$ | $x_t$  | t  | $\xi_t$ | $x_t$  |
|----|---------|--------|----|---------|--------|
| 1  | 12.28   | 12.28  | 31 | - .61   | 11.25  |
| 2  | -13.39  | .12    | 32 | 2.97    | 11.32  |
| 3  | -17.78  | -23.54 | 33 | - 3.24  | 4.26   |
| 4  | - 1.47  | -26.31 | 34 | - 7.55  | - 7.28 |
| 5  | - 4.08  | -21.71 | 35 | -10.08  | -19.11 |
| 6  | 8.19    | - 5.18 | 36 | - 6.45  | -23.60 |
| 7  | -15.56  | -13.21 | 37 | -12.44  | -29.89 |
| 8  | 11.30   | - 2.69 | 38 | 14.16   | - 9.11 |
| 9  | - 2.63  | .28    | 39 | 21.67   | 23.88  |
| 10 | 11.29   | 11.70  | 40 | .01     | 27.96  |
| 11 | .50     | 13.00  | 41 | - 6.86  | 11.62  |
| 12 | - 2.61  | 6.10   | 42 | - 6.54  | - 5.03 |
| 13 | -10.93  | - 9.41 | 43 | - 4.49  | -13.08 |
| 14 | 2.36    | - 9.75 | 44 | -13.20  | -24.13 |
| 15 | 2.72    | - 2.94 | 45 | 3.81    | -16.90 |
| 16 | 9.20    | 9.80   | 46 | 8.76    | .57    |
| 17 | 24.00   | 35.31  | 47 | -16.21  | - 9.64 |
| 18 | - 3.54  | 30.34  | 48 | 5.68    | - 6.71 |
| 19 | - 4.20  | 13.10  | 49 | -13.95  | -16.65 |
| 20 | 1.12    | 4.15   | 50 | .40     | -15.57 |
| 21 | -11.35  | -10.34 | 51 | 3.48    | - 6.26 |
| 22 | 2.13    | -10.05 | 52 | 9.66    | 8.74   |
| 23 | - 1.53  | - 7.26 | 53 | 4.03    | 15.24  |
| 24 | - 8.05  | -12.15 | 54 | - 7.22  | 4.78   |
| 25 | - 1.77  | -12.56 | 55 | 10.34   | 9.07   |
| 26 | 8.48    | - .16  | 56 | 9.78    | 18.84  |
| 27 | -24.97  | -20.21 | 57 | - 6.23  | 10.57  |
| 28 | - 2.46  | -25.74 | 58 | -18.02  | -14.61 |
| 29 | .55     | -18.07 | 59 | 5.58    | -13.86 |
| 30 | 14.35   | 5.01   | 60 | - 2.01  | - 9.30 |

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|-----|--------------|--------|
| 61 | 12.91        | 8.02   | 91  | -11.45       | -19.74 |
| 62 | -15.91       | - 3.88 | 92  | - 1.24       | -19.71 |
| 63 | 10.88        | 1.92   | 93  | - 8.41       | -21.22 |
| 64 | 2.71         | 7.40   | 94  | 3.74         | -11.92 |
| 65 | -16.20       | - 9.33 | 95  | 13.36        | 8.67   |
| 66 | 3.72         | - 9.92 | 96  | 1.06         | 14.41  |
| 67 | - 1.87       | - 7.63 | 97  | 13.22        | 23.84  |
| 68 | -25.40       | -29.87 | 98  | - 4.50       | 15.58  |
| 69 | - 1.77       | -31.86 | 99  | -13.98       | - 6.98 |
| 70 | - 7.35       | -28.75 | 100 | -10.71       | -23.72 |
| 71 | 3.19         | -15.84 | 101 | -13.66       | -35.00 |
| 72 | 8.72         | 2.23   | 102 | 23.11        | - 4.63 |
| 73 | - 1.86       | 5.60   | 103 | - .01        | 9.57   |
| 74 | - 6.17       | - 2.51 | 104 | - 5.02       | 4.58   |
| 75 | 12.98        | 7.73   | 105 | 5.75         | 5.78   |
| 76 | - .76        | 9.44   | 106 | - .31        | 4.71   |
| 77 | 4.84         | 11.28  | 107 | - 6.09       | - 3.27 |
| 78 | 5.63         | 14.21  | 108 | - 5.24       | -10.58 |
| 79 | 22.31        | 33.38  | 109 | 2.03         | - 7.62 |
| 80 | 12.31        | 43.23  | 110 | .97          | - 2.62 |
| 81 | - 1.01       | 31.80  | 111 | -12.62       | -12.79 |
| 82 | - 9.83       | 7.40   | 112 | - 6.73       | -20.23 |
| 83 | 2.61         | - .62  | 113 | - 4.72       | -21.07 |
| 84 | .19          | - 1.18 | 114 | - 9.34       | -23.96 |
| 85 | -16.09       | -16.42 | 115 | 1.95         | -16.12 |
| 86 | -14.10       | -31.65 | 116 | - 3.73       | -11.86 |
| 87 | 7.63         | -19.42 | 117 | - 9.44       | -16.91 |
| 88 | - 2.92       | -10.57 | 118 | 7.40         | - 6.96 |
| 89 | 4.84         | - .32  | 119 | - 3.27       | - 3.88 |
| 90 | - 9.78       | - 6.81 | 120 | .64          | - 1.81 |



NORMAL DISTRIBUTION

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 121 | - 1.12       | - 1.88 | 151 | 7.47         | 23.33  |
| 122 | .68          | - .87  | 152 | 5.13         | 24.04  |
| 123 | 6.92         | 6.70   | 153 | 1.17         | 17.70  |
| 124 | -11.70       | - 4.08 | 154 | - 1.43       | 8.60   |
| 125 | -16.32       | -24.11 | 155 | - 6.46       | - 3.34 |
| 126 | - 3.26       | -27.22 | 156 | 21.46        | 15.25  |
| 127 | - 3.50       | -22.24 | 157 | - 3.00       | 16.15  |
| 128 | - 4.66       | -18.22 | 158 | -15.50       | - 5.35 |
| 129 | 34.75        | 22.94  | 159 | -11.29       | -23.56 |
| 130 | - 2.31       | 29.67  | 160 | - 1.88       | -23.78 |
| 131 | 4.26         | 24.25  | 161 | - .18        | -15.51 |
| 132 | -12.05       | 2.45   | 162 | .95          | - 6.82 |
| 133 | 4.57         | - 1.70 | 163 | -19.20       | -21.40 |
| 134 | 30.52        | 29.65  | 164 | - 3.32       | -24.99 |
| 135 | 2.94         | 36.60  | 165 | 11.94        | - 5.89 |
| 136 | 4.04         | 29.92  | 166 | - 3.77       | - .18  |
| 137 | 3.15         | 21.16  | 167 | -10.20       | - 9.82 |
| 138 | - 8.02       | 4.19   | 168 | - 6.46       | -17.70 |
| 139 | - 5.22       | - 8.08 | 169 | 9.47         | - 5.31 |
| 140 | -15.71       | -24.71 | 170 | 3.46         | 5.24   |
| 141 | -11.91       | -34.83 | 171 | 2.67         | 9.39   |
| 142 | 18.44        | - 8.74 | 172 | 13.65        | 20.98  |
| 143 | -12.83       | - 7.94 | 173 | -17.49       | 1.55   |
| 144 | -17.32       | -24.98 | 174 | 2.83         | - 4.68 |
| 145 | - 1.27       | -25.73 | 175 | 10.85        | 6.85   |
| 146 | - 4.39       | -21.41 | 176 | - 3.33       | 6.60   |
| 147 | 22.76        | 9.31   | 177 | 4.72         | 8.27   |
| 148 | - 9.22       | 8.98   | 178 | .33          | 6.88   |
| 149 | - 1.94       | 1.54   | 179 | 3.28         | 7.47   |
| 150 | 16.13        | 14.35  | 180 | 9.23         | 14.89  |

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 181 | -14.58       | - 1.17 | 211 | -19.03       | 13.85  |
| 182 | - 2.06       | - 9.83 | 212 | 4.93         | 3.82   |
| 183 | 3.59         | - 5.32 | 213 | 3.99         | 4.94   |
| 184 | - 2.14       | - 3.38 | 214 | 14.47        | 19.32  |
| 185 | - .58        | - 2.63 | 215 | 6.99         | 26.21  |
| 186 | 9.59         | 7.84   | 216 | .23          | 20.23  |
| 187 | 3.77         | 13.35  | 217 | 5.10         | 16.51  |
| 188 | -15.13       | - 4.44 | 218 | 5.82         | 16.63  |
| 189 | -13.35       | -23.93 | 219 | 6.77         | 18.96  |
| 190 | 15.44        | - 7.55 | 220 | - 9.56       | 4.81   |
| 191 | .76          | 3.54   | 221 | - 4.61       | - 6.92 |
| 192 | 8.49         | 13.85  | 222 | -13.87       | -22.08 |
| 193 | .26          | 13.12  | 223 | - 2.21       | -22.75 |
| 194 | 3.22         | 11.32  | 224 | -20.31       | -35.36 |
| 195 | -19.73       | -12.33 | 225 | 1.30         | -28.67 |
| 196 | -23.86       | -41.67 | 226 | - 5.33       | -21.95 |
| 197 | 28.22        | -10.68 | 227 | 9.44         | - 4.13 |
| 198 | - 6.49       | .65    | 228 | - 1.50       | 1.92   |
| 199 | -18.16       | -16.06 | 229 | -15.10       | -12.99 |
| 200 | - 2.02       | -20.96 | 230 | - 2.73       | -18.31 |
| 201 | - 4.04       | -19.33 | 231 | 11.12        | - 2.61 |
| 202 | 15.13        | 2.48   | 232 | - 1.96       | 2.79   |
| 203 | - .09        | 10.03  | 233 | 6.69         | 9.36   |
| 204 | 6.01         | 14.11  | 234 | 22.89        | 31.62  |
| 205 | 11.02        | 21.95  | 235 | - 7.70       | 22.84  |
| 206 | 8.52         | 26.80  | 236 | 2.90         | 13.68  |
| 207 | 4.43         | 24.64  | 237 | - 1.04       | 5.90   |
| 208 | - 6.48       | 9.74   | 238 | - 2.64       | - .66  |
| 209 | 18.71        | 20.00  | 239 | .87          | - 1.46 |
| 210 | 18.28        | 37.82  | 240 | 28.87        | 28.11  |

NORMAL DISTRIBUTION

Series No. 3

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \xi_{t+2}$$

| t   | $\xi_t$ | $x_t$  | t   | $\xi_t$ | $x_t$  |
|-----|---------|--------|-----|---------|--------|
| 241 | - 9.26  | 22.30  | 271 | 8.49    | -22.34 |
| 242 | 1.79    | 12.70  | 272 | - .07   | - 9.73 |
| 243 | - 1.38  | 4.42   | 273 | 8.66    | 5.61   |
| 244 | 8.31    | 9.08   | 274 | - 6.32  | 2.51   |
| 245 | 6.48    | 15.49  | 275 | .46     | - .35  |
| 246 | 14.73   | 27.81  | 276 | 2.02    | .93    |
| 247 | - 7.71  | 16.26  | 277 | - 1.67  | - .25  |
| 248 | 4.65    | 10.58  | 278 | - 4.97  | - 5.73 |
| 249 | - 7.09  | - .75  | 279 | 16.51   | 10.41  |
| 250 | - 7.98  | -12.43 | 280 | - 7.84  | 6.34   |
| 251 | .11     | -12.25 | 281 | 10.85   | 12.30  |
| 252 | -17.99  | -25.57 | 282 | - 7.91  | 3.52   |
| 253 | -11.25  | -34.62 | 283 | 15.07   | 13.61  |
| 254 | - 7.83  | -34.74 | 284 | 3.51    | 17.90  |
| 255 | .58     | -23.31 | 285 | 23.82   | 37.30  |
| 256 | - 8.76  | -20.84 | 286 | - 9.99  | 23.67  |
| 257 | 3.65    | -11.21 | 287 | -10.85  | - 1.10 |
| 258 | - 8.37  | -12.80 | 288 | - 1.62  | -10.83 |
| 259 | - 1.12  | -11.70 | 289 | 4.89    | - 4.36 |
| 260 | 2.91    | - 4.83 | 290 | 3.52    | 3.82   |
| 261 | .34     | - .50  | 291 | 10.02   | 15.34  |
| 262 | 6.23    | 6.95   | 292 | 6.21    | 20.86  |
| 263 | - 2.99  | 4.47   | 293 | 15.28   | 31.21  |
| 264 | -16.93  | -15.40 | 294 | 1.07    | 26.77  |
| 265 | - 3.54  | -22.00 | 295 | - 1.20  | 15.15  |
| 266 | 5.34    | -11.07 | 296 | - 8.28  | - 1.65 |
| 267 | -10.85  | -13.86 | 297 | - 6.32  | -13.00 |
| 268 | - .64   | -12.56 | 298 | -16.81  | -28.96 |
| 269 | - 8.22  | -16.39 | 299 | -17.21  | -42.98 |
| 270 | -20.90  | -34.15 | 300 | -12.40  | -46.95 |

NORMAL DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t  | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|----|--------------|--------|
| 1  | 9.95         | 9.95   | 31 | - 5.51       | 4.56   |
| 2  | 5.45         | 16.40  | 32 | - 9.31       | -10.08 |
| 3  | 2.89         | 16.15  | 33 | -24.09       | -35.90 |
| 4  | 7.40         | 18.20  | 34 | 2.23         | -32.01 |
| 5  | -29.94       | -16.19 | 35 | 2.65         | -16.24 |
| 6  | - 2.55       | -27.65 | 36 | 4.97         | - .76  |
| 7  | 8.32         | -12.69 | 37 | 12.44        | 16.52  |
| 8  | 1.32         | - .83  | 38 | -16.91       | .16    |
| 9  | - 7.85       | - 5.16 | 39 | - 8.86       | -16.68 |
| 10 | -15.48       | -21.90 | 40 | -14.99       | -31.93 |
| 11 | 3.64         | -18.04 | 41 | -12.88       | -39.98 |
| 12 | 4.64         | - 5.15 | 42 | - .60        | -30.75 |
| 13 | 12.86        | 13.88  | 43 | 15.14        | - 2.37 |
| 14 | - .64        | 15.48  | 44 | 17.14        | 25.69  |
| 15 | - 6.97       | 2.94   | 45 | -18.26       | 8.37   |
| 16 | 1.96         | - .99  | 46 | 11.90        | 8.57   |
| 17 | 3.37         | 2.26   | 47 | 2.45         | 10.17  |
| 18 | 1.74         | 4.97   | 48 | -12.84       | - 5.01 |
| 19 | .18          | 4.48   | 49 | 24.11        | 14.49  |
| 20 | 10.75        | 13.49  | 50 | 7.28         | 26.54  |
| 21 | 5.34         | 18.48  | 51 | 6.25         | 28.03  |
| 22 | - 1.35       | 12.90  | 52 | - .86        | 18.53  |
| 23 | - 3.29       | 3.24   | 53 | - 8.36       | .96    |
| 24 | 2.90         | 1.93   | 54 | 12.03        | 6.72   |
| 25 | 16.50        | 18.22  | 55 | - 3.68       | 4.92   |
| 26 | - .04        | 19.36  | 56 | - 7.59       | - 5.32 |
| 27 | 1.67         | 14.39  | 57 | 6.01         | - 1.60 |
| 28 | 25.85        | 34.03  | 58 | 4.03         | 5.26   |
| 29 | - 9.38       | 22.88  | 59 | - 2.87       | 3.21   |
| 30 | 6.21         | 16.35  | 60 | - 6.72       | - 5.85 |

NORMAL DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t  | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|----|--------------|--------|-----|--------------|--------|
| 61 | - 1.69       | - 9.20 | 91  | -15.83       | 3.65   |
| 62 | 7.20         | .18    | 92  | 16.69        | 9.29   |
| 63 | - 7.81       | - 3.72 | 93  | -14.50       | - 3.33 |
| 64 | 1.24         | - 3.77 | 94  | 3.50         | - 4.29 |
| 65 | 2.49         | .15    | 95  | 17.34        | 15.06  |
| 66 | 3.35         | 5.00   | 96  | .88          | 19.21  |
| 67 | - 2.83       | 2.26   | 97  | .34          | 13.85  |
| 68 | 15.31        | 15.41  | 98  | 20.56        | 27.94  |
| 69 | - 2.26       | 14.06  | 99  | - 6.73       | 19.08  |
| 70 | 3.42         | 11.69  | 100 | 11.02        | 19.85  |
| 71 | - 8.13       | - .63  | 101 | .58          | 15.77  |
| 72 | 2.17         | - 2.86 | 102 | - 6.58       | 2.96   |
| 73 | - 3.60       | - 5.40 | 103 | 21.14        | 18.62  |
| 74 | - 3.39       | - 8.02 | 104 | - 4.68       | 15.80  |
| 75 | - 3.39       | - 9.88 | 105 | 1.52         | 10.23  |
| 76 | - 8.45       | -15.96 | 106 | -15.69       | -10.34 |
| 77 | - 9.45       | -22.99 | 107 | 10.31        | - 4.55 |
| 78 | - 2.83       | -21.35 | 108 | - 9.61       | - 8.74 |
| 79 | -29.05       | -42.94 | 109 | 16.91        | 8.55   |
| 80 | 8.40         | -30.65 | 110 | - 8.88       | 4.32   |
| 81 | 1.14         | -13.89 | 111 | - 6.47       | - 6.61 |
| 82 | -11.19       | -15.62 | 112 | -12.12       | -20.69 |
| 83 | 3.52         | - 9.75 | 113 | -11.14       | -30.34 |
| 84 | 5.61         | 1.13   | 114 | - 1.64       | -25.67 |
| 85 | - 4.70       | - .19  | 115 | 1.21         | -14.33 |
| 86 | 7.20         | 5.57   | 116 | - 5.70       | -11.87 |
| 87 | 8.09         | 14.41  | 117 | 1.97         | - 6.52 |
| 88 | 12.56        | 25.72  | 118 | - 4.65       | - 7.41 |
| 89 | 11.03        | 32.90  | 119 | -10.64       | -16.73 |
| 90 | 4.82         | 29.96  | 120 | 20.05        | 4.62   |

NORMAL DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 121 | .68          | 13.12  | 151 | -17.41       | -31.02 |
| 122 | 12.62        | 23.32  | 152 | 2.79         | -25.57 |
| 123 | -10.11       | 9.66   | 153 | - 9.95       | -24.28 |
| 124 | - 7.60       | - 6.98 | 154 | - 3.85       | -21.08 |
| 125 | 4.14         | - 6.08 | 155 | - 5.63       | -19.47 |
| 126 | 14.50        | 12.03  | 156 | 3.86         | - 9.63 |
| 127 | - 5.05       | 10.47  | 157 | 2.20         | - .94  |
| 128 | -14.91       | - 9.71 | 158 | -12.72       | -10.88 |
| 129 | 3.58         | -11.05 | 159 | 1.20         | -11.19 |
| 130 | - 4.41       | -10.97 | 160 | .72          | - 6.45 |
| 131 | 11.13        | 3.49   | 161 | 12.39        | 9.68   |
| 132 | 19.21        | 27.33  | 162 | - 5.54       | 7.20   |
| 133 | 5.89         | 33.28  | 163 | 3.37         | 6.06   |
| 134 | 4.76         | 28.56  | 164 | 4.19         | 8.27   |
| 135 | 9.82         | 27.73  | 165 | 13.75        | 20.59  |
| 136 | - 3.27       | 16.52  | 166 | 6.34         | 25.57  |
| 137 | 1.59         | 9.02   | 167 | -25.17       | - 6.18 |
| 138 | -25.11       | -20.62 | 168 | 1.38         | -15.84 |
| 139 | - 2.25       | -27.77 | 169 | 3.72         | - 8.43 |
| 140 | - 6.11       | -25.95 | 170 | 6.57         | 4.34   |
| 141 | .46          | -16.62 | 171 | -12.33       | - 4.94 |
| 142 | 4.67         | - 3.65 | 172 | - 6.83       | -15.10 |
| 143 | - 1.62       | .00    | 173 | - 8.19       | -22.04 |
| 144 | - .78        | - .53  | 174 | - 7.54       | -24.97 |
| 145 | 2.69         | 1.78   | 175 | -15.53       | -33.78 |
| 146 | -25.80       | -23.59 | 176 | 7.55         | -19.60 |
| 147 | 8.20         | -18.65 | 177 | - 2.73       | -10.33 |
| 148 | 2.17         | - 6.87 | 178 | -19.83       | -24.82 |
| 149 | - .06        | - .79  | 179 | -13.37       | -37.47 |
| 150 | -12.90       | -12.15 | 180 | 1.27         | -28.97 |

NORMAL DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 181 | - 3.50       | -19.61 | 211 | - 3.38       | -10.99 |
| 182 | 5.11         | - 5.92 | 212 | - 2.51       | -12.73 |
| 183 | - .13        | .16    | 213 | - 7.89       | -16.62 |
| 184 | .47          | 1.73   | 214 | 4.22         | - 8.94 |
| 185 | 5.36         | 6.65   | 215 | .12          | - 2.88 |
| 186 | - 4.45       | 2.05   | 216 | 11.77        | 11.39  |
| 187 | - 5.46       | - 6.23 | 217 | - 5.16       | 7.95   |
| 188 | 2.48         | - 4.75 | 218 | 6.67         | 9.69   |
| 189 | - 9.15       | -11.21 | 219 | 14.77        | 22.64  |
| 190 | -14.37       | -24.98 | 220 | -15.75       | 5.22   |
| 191 | 3.96         | -18.57 | 221 | 2.53         | - 1.73 |
| 192 | 17.14        | 7.69   | 222 | 6.32         | 3.95   |
| 193 | 6.35         | 21.47  | 223 | - 8.20       | - 2.55 |
| 194 | 6.62         | 24.88  | 224 | 3.99         | - .88  |
| 195 | - 9.77       | 7.98   | 225 | - .07        | .54    |
| 196 | 1.52         | .29    | 226 | - 8.21       | - 7.43 |
| 197 | - 4.92       | - 6.19 | 227 | -22.01       | -30.52 |
| 198 | 10.75        | 4.52   | 228 | - 7.97       | -37.92 |
| 199 | 11.49        | 19.46  | 229 | - 5.55       | -33.28 |
| 200 | - 5.27       | 13.41  | 230 | -10.10       | -31.26 |
| 201 | 14.18        | 20.00  | 231 | 15.25        | - 6.58 |
| 202 | - .56        | 16.75  | 232 | 5.67         | 10.43  |
| 203 | - 4.53       | 5.51   | 233 | -11.24       | .58    |
| 204 | 3.25         | 3.07   | 234 | 11.08        | 6.12   |
| 205 | 5.61         | 7.86   | 235 | - 6.39       | 1.00   |
| 206 | - 6.24       | 1.44   | 236 | 8.52         | 6.73   |
| 207 | 10.00        | 8.09   | 237 | -12.34       | - 4.87 |
| 208 | 15.84        | 24.76  | 238 | 16.01        | 7.51   |
| 209 | - 3.22       | 20.27  | 239 | -16.97       | - 5.76 |
| 210 | -11.25       | - .10  | 240 | 12.88        | 2.50   |

NORMAL DISTRIBUTION

Series No. 4

$$x_{t+2} = 1.1 x_{t+1} - .48 x_t + .09 x_{t-1} + \epsilon_{t+2}$$

| t   | $\epsilon_t$ | $x_t$  | t   | $\epsilon_t$ | $x_t$  |
|-----|--------------|--------|-----|--------------|--------|
| 241 | 8.49         | 14.68  | 271 | 6.99         | - 1.19 |
| 242 | 14.68        | 29.11  | 272 | - 9.80       | - 7.80 |
| 243 | 1.01         | 26.21  | 273 | 6.27         | - 2.33 |
| 244 | - 8.11       | 8.07   | 274 | -20.69       | -19.62 |
| 245 | 1.31         | .23    | 275 | - 6.08       | -27.24 |
| 246 | - 2.92       | - 4.18 | 276 | 18.87        | - 1.88 |
| 247 | - 5.69       | - 9.67 | 277 | 11.20        | 20.44  |
| 248 | -15.47       | -24.08 | 278 | 3.95         | 24.88  |
| 249 | 8.60         | -13.63 | 279 | 2.34         | 19.73  |
| 250 | -16.96       | -21.26 | 280 | 11.51        | 23.11  |
| 251 | - 4.84       | -23.86 | 281 | 3.92         | 22.11  |
| 252 | -11.03       | -28.31 | 282 | .72          | 15.73  |
| 253 | -12.05       | -33.65 | 283 | - 1.11       | 7.66   |
| 254 | 12.11        | -13.47 | 284 | 3.71         | 6.58   |
| 255 | 21.45        | 20.23  | 285 | - 1.65       | 3.33   |
| 256 | - 2.89       | 22.80  | 286 | -16.76       | -15.57 |
| 257 | - 8.26       | 5.90   | 287 | -13.56       | -31.70 |
| 258 | -19.08       | -21.71 | 288 | -12.82       | -39.92 |
| 259 | - 9.93       | -34.59 | 289 | 7.86         | -22.23 |
| 260 | -20.72       | -47.82 | 290 | - 2.61       | -10.75 |
| 261 | 17.30        | -20.65 | 291 | -18.85       | -23.60 |
| 262 | 16.01        | 13.13  | 292 | -11.09       | -33.89 |
| 263 | 9.76         | 29.81  | 293 | 6.97         | -19.95 |
| 264 | 12.44        | 37.07  | 294 | - 5.02       | -12.82 |
| 265 | -10.72       | 16.93  | 295 | 12.19        | 4.62   |
| 266 | - 9.41       | - 5.90 | 296 | 2.19         | 11.62  |
| 267 | .49          | -10.79 | 297 | 19.86        | 29.27  |
| 268 | 5.37         | - 2.15 | 298 | - 3.40       | 23.64  |
| 269 | - .77        | 1.51   | 299 | 6.79         | 19.79  |
| 270 | - 8.33       | - 6.61 | 300 | 8.85         | 21.90  |



NORMAL DISTRIBUTION

$$C_r = \sum_{t=1}^{N-r} x_t x_{t+r}$$

| r  | Series No. 1 | Series No. 2 | Series No. 3 | Series No. 4 |
|----|--------------|--------------|--------------|--------------|
| 0  | 908.205      | 749.104      | 876.109      | 893.638      |
| 1  | 646.291      | 530.280      | 648.594      | 679.268      |
| 2  | 175.576      | 191.514      | 328.783      | 364.326      |
| 3  | -204.509     | - 89.688     | 122.744      | 125.943      |
| 4  | -377.593     | -215.787     | 31.904       | 10.072       |
| 5  | -314.941     | -193.587     | - .581       | - 3.277      |
| 6  | -122.512     | -105.784     | - 25.008     | 18.082       |
| 7  | 40.068       | - 18.290     | - 47.926     | 16.268       |
| 8  | 113.183      | 23.221       | - 71.456     | - 33.393     |
| 9  | 115.251      | 37.713       | -140.687     | -111.731     |
| 10 | 48.033       | 29.908       | -195.927     | -182.359     |
| 11 | - 58.039     | - 1.272      | -204.423     | -194.338     |
| 12 | -102.248     | - 49.663     | -166.641     | -156.871     |
| 13 | - 61.911     | - 78.588     | -113.646     | -116.771     |
| 14 | 13.319       | -107.208     | - 85.311     | - 78.797     |
| 15 | 116.591      | -107.707     | - 60.199     | - 47.310     |
| 16 | 180.211      | - 81.735     | - 42.776     | - 41.739     |
| 17 | 140.204      | 28.382       | - 45.784     | - 58.376     |
| 18 | 64.695       | .255         | - 54.706     | -102.964     |
| 19 | 22.814       | 24.994       | - 76.554     | -114.564     |
| 20 | - 7.000      | 52.817       | - 57.785     | - 78.746     |
| 21 | - 25.979     | 80.024       | - 11.741     | - 8.708      |
| 22 | - 19.549     | 87.452       | 45.377       | 48.507       |
| 23 | 4.532        | 54.618       | 61.117       | 46.443       |
| 24 | 23.808       | - 6.330      | 50.599       | .188         |
| 25 | 39.453       | 62.952       | 40.314       | - 46.705     |
| 26 | 19.365       | -125.320     | 36.363       | - 48.506     |
| 27 | - 42.084     | -147.746     | 39.986       | - 44.413     |
| 28 | - 70.733     | -125.014     | 31.844       | - 45.782     |
| 29 | - 40.022     | - 78.184     | 10.262       | - 36.395     |
| 30 | 29.089       | - 17.196     | 11.638       | 3.308        |



## THE NATIONAL BUREAU OF STANDARDS

### Functions and Activities

The functions of the National Bureau of Standards are set forth in the Act of Congress, March 3, 1901, as amended by Congress in Public Law 619, 1950. These include the development and maintenance of the national standards of measurement and the provision of means and methods for making measurements consistent with these standards; the determination of physical constants and properties of materials; the development of methods and instruments for testing materials, devices, and structures; advisory services to Government Agencies on scientific and technical problems; invention and development of devices to serve special needs of the Government; and the development of standard practices, codes, and specifications. The work includes basic and applied research, development, engineering, instrumentation, testing, evaluation, calibration services, and various consultation and information services. A major portion of the Bureau's work is performed for other Government Agencies, particularly the Department of Defense and the Atomic Energy Commission. The scope of activities is suggested by the listing of divisions and sections on the inside of the front cover.

### Reports and Publications

The results of the Bureau's work take the form of either actual equipment and devices or published papers and reports. Reports are issued to the sponsoring agency of a particular project or program. Published papers appear either in the Bureau's own series of publications or in the journals of professional and scientific societies. The Bureau itself publishes three monthly periodicals, available from the Government Printing Office: The Journal of Research, which presents complete papers reporting technical investigations; the Technical News Bulletin, which presents summary and preliminary reports on work in progress; and Basic Radio Propagation Predictions, which provides data for determining the best frequencies to use for radio communications throughout the world. There are also five series of nonperiodical publications: The Applied Mathematics Series, Circulars, Handbooks, Building Materials and Structures Reports, and Miscellaneous Publications.

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