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1 90 '-----
2 100 'POISSON REDUNDANT RELIABILITY OF OPERATING AND STANDBY UNITS (POISSONS.BAS)
3 110 '-----
4 160 CLS
5 170 Print
6 180 Print " POISSON REDUNDANT RELIABILITY OF OPERATING AND STANDBY UNITS (POISSONS.BAS)"
7 182 Print " ORIGINAL DATE: Circa 1985"
8 184 Print " REVISION DATE: October 24, 2020"
9 186 Print " AUTHOR: Phil Rutherford"
10 188 Print " RUN DATE: ";Date$;
11 190 Print " (DD-MM-YYYY)
12 192 Print " RUN TIME: ";TIME$
13 194 Print " RUN WITH MMBASIC.EXE (www.mmbasic.com)"
14 220 Print
15 230 Print " APPLICABLE TO PROBLEM OF M OPERATING AND N STANDBY UNITS"
16 240 Print " STANDBY LAMDA ASSUMED ZERO, THEREFORE MU=M*LAMDA*T"
17 250 Print
18 260 Input " MINIMUM NUMBER OF OPERATING UNITS REQUIRED (M) ";M
19 300 Input " NUMBER OF EXCESS (SPARE) STANDBY UNITS (N) ";N
20 400 Input " OPERATING UNIT FAILURE RATE (PER HOUR) ";LAMDA
21 500 Input " MISSION TIME (HOURS) ";T
22 510 Print
23 520 Dim FAC(100)
24 740 TERM=M*LAMDA*T
25 750 RNOFAIL=Exp(-1*TERM)
26 800 Print " RELIABILITY WITH 0 SPARES IS ";RNOFAIL;TAB(48);"P(=>";M;"/";M;".S)"
27 860 Goto 1270
28 870 '-----
29 900 'FACTORIAL SUBROUTINE
30 910 '-----
31 1000 I=1
32 1100 For J=1 To NUM
33 1200 I=I*J
34 1250 Next J
35 1260 Return
36 1270 SUM=1
37 1300 For Y=1 To N
38 1350 NUM=Y
39 1360 GOSUB 900
40 1390 YFAC=I
41 1400 COEFF=TERM^Y/YFAC
42 1410 SUM=SUM+COEFF
43 1420 R=RNOFAIL*SUM
44 2000 Print " RELIABILITY WITH";Y;" SPARES IS ";R;TAB(48);"P(=>";M;"/";M+Y;".S)"
45 2100 Next Y
46 2200 End

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