

MCM TAPE TAPE-25.TXT

TAPE LABEL/ANNOTATIONS: "DEM II
3"

DATE CREATED: DEC. 1975

GROUPS:

0	1	2	4	8	13	19	40	50	60	61
62	63	64	65	80	90	100	101			

NAMES IN GROUP 0:

GET ΔCP GRP GR ΔCR DXΔ RLΔ ANΔ

▽GET X;N

```
[1] →0◦□XS X◦→2[ι0≠0\0ρX S
[2] N←(GRP[;4 5 6]Λ.=3↑X,3ρ' ')ι1
[3] □XS⊕GRPS[N;ι3]◦→0×ιN>1↑ρGRPS
[4] →0×ιΛ/□FNV.≠(3↑X,3ρ' '), ' '
▽
```

▽ΔCP;ΔG;ΔGN

```
[1] ΔG←□XNι0◦□PT←10
[2] 'GROUP ';1↑ΔG◦□XS 1↑ΔG◦ΔGN←□XN 1↑ΔG
[3] ⊕'(1↑ΔG) □X', 'WC' [□I0+0=□NC 1 4↑ΔGN], '[2] 1 4↑ΔGN'
[4] →(0≠ρΔGN←1 0↓ΔGN)/3 5
[5] →(0<ρΔG←1↓ΔG)/2
[6] □XS 0◦□XF[2]ι0
[7] 'COPY DONE'◦□PT←0
▽
```

GRP [16 by 15 array of type char; element size 1 byte(s)]

REV: 751113

0:CONVENIENCE

1:DEMONSTRATE

2:GEN UTILITY

4:SYSTEM TEST

8:PLOT-PAK

13:STATISTICS

19:FINANCE

40:MATHEMATICS

50:CAI

61:COMSHARE DEM

62:STSC COM DEM

63:CDI TERMINAL

64:ADDS-DEMO

80:GAMES

∇RLΔ N

- [1] $\rightarrow 0 \times \iota (1 \uparrow \text{PS}\Delta) \geq \text{PL}\Delta \leftarrow \text{PL}\Delta + N$
 - [2] $\text{PL}\Delta \leftarrow N \circ \square \leftarrow (((\neg 1 \uparrow \text{PS}\Delta) - (\neg 1 \uparrow \text{PS}\Delta) | \text{PL}\Delta - N) - 4 \times \neg 1 + [\text{PL}\Delta \div 1 \uparrow \text{PS}\Delta], 1) \rho ' '$
- ∇

∇ZΔ←ANΔ XΔ;JΔ

- [1] $Z\Delta \leftarrow \theta \ 4\rho ' ' \circ \rightarrow (2 = \rho\rho Z\Delta \leftarrow X\Delta) / \theta$
 - [2] $\rightarrow 0 \times \iota \theta = \rho X\Delta \leftarrow (((X\Delta = ' ') \iota \theta) - \square I0) \downarrow X\Delta$
 - [3] $Z\Delta \leftarrow Z\Delta \uparrow 1 \ 4\rho ((J\Delta \leftarrow (X\Delta \iota ' ') - \square I0) \uparrow X\Delta), ' '$
 - [4] $\rightarrow 2 \circ X\Delta \leftarrow J\Delta \downarrow X\Delta$
- ∇

NAMES IN GROUP 1:

AVG AH DTO OTD AO DTH HTD RAD DEM SOR MAX SQU
OU1 BUN ZZ XX

∇Z←AVG X

- [1] $Z \leftarrow (+/X) \div \rho X$
- ∇

∇R←A AH B

- [1] $R \leftarrow \text{DTH} (\text{HTD A}) + \text{HTD B H}$
- ∇

∇R←DTO X

- [1] $R \leftarrow \underline{\text{'01234567'}} [1 + (8\rho 8) \tau ' ' \rho X \circ \square \text{PP} \leftarrow 8]$
- ∇

∇R←OTD X

- [1] $R \leftarrow (8\rho 8) \downarrow X \leftarrow (8\rho 10) \tau X$
 - [2] $\rightarrow 3 \times \sim \wedge / X \in \{0, 1, 2, 3, 4, 5, 6, 7\} R$
 - [3] $' \text{NUMBER IS NOT OCTAL} ' \circ R \leftarrow ' '$
- ∇

∇R←A AO B

- [1] $R \leftarrow \text{DTO} (\text{OTD A}) + \text{OTD B O}$
- ∇

∇R←DTH X

- [1] $R \leftarrow \text{'0123456789ABCDEF'} [1 + (8\rho 16) \tau ' ' \rho X]$
- ∇

∇R←HTD X

- [1] $R \leftarrow ((8 - \rho, X) \rho ' \theta '), X$
- [2] $R \leftarrow | (16 \downarrow \neg 1 + \text{'0123456789ABCDEF'} \iota R) - (2 * 32) \times R [1] \in \text{'89ABCDEF'}$
- [3] $\rightarrow 4 \times \sim \wedge / X \in \text{'0123456789ABCDEF'}$

```
[4] R←''
[5] 'NUMBER IS NOT HEX'
▽
```

```
▽R←RAD X
[1] R←02|X÷180
▽
```

```
▽DEMO
[1] □PT←25
[2] 'THIS IS THE MCM/70'
[3] 'THE DESKTOP COMPUTER...'
[4] 'WITH FEATURES NORMALLY FOUND..'
[5] 'IN LARGE COMPUTER SYSTEMS.'
[6] 'SOME OF THE MCM FEATURES ARE:'
[7] 'KEYBOARD PROGRAMMING IN A P L'
[8] 'A VIRTUAL OPERATING SYSTEM...'
[9] 'POWER-FAIL PROTECTION...'
[10] 'AND GENERAL-PURPOSE INTERFACE'
[11] 'THE SIMPLICITY OF APL'
[12] 'COMBINED WITH ITS POWER'
[13] 'MAKES THE MCM/70 THE MOST'
[14] 'FLEXIBLE DESKTOP UNIT AVAILABLE'
[15] 'EXAMPLES OF APL'S SIMPLICITY:'
[16] 'GENERALIZED MEAN : (+/X)÷ρX'
[17] 'ASCENDING SORT OF X : X[ΔX]'
[18] 'FINDING MAXIMUM : [/X '
[19] 'SHAPING X-Y MATRIX : X YρDATA'
[20] →1
▽
```

```
▽SORT
[1] □PT←30
[2] X←⊥(ρX)↓□X←'ENTER SOME NUMBERS RANDOMLY '
[3] →2×11≠ρρX
[4] N←ρX○ X←X[ΔX]
[5] 'SORTED: ';X
[6] 'BY THE WAY...'
[7] 'AVERAGE IS: ';(+/X)÷ρX
[8] 'MAXIMUM IS: ';X[N]
[9] 'MINIMUM IS: ';X[1] R
[10] 'AND...'
[11] 'STD. DEVIATION IS: ';STD X 8
[12] □PT←0
▽
```

```
▽MAX
[1] □PT←15
[2] X←⊥20↓□'ENTER SOME NUMBERS: '
[3] 'THE LARGEST VALUE IS: ';[/X
[4] 'THE SMALLEST VALUE IS: ';[/X
[5] 'AND...IN ADDITION...'

```



```

[7] RLD 1+FVA←2+[(×/ρNMA)÷80
[8] □←' '◊□←'LISTING GROUP: ',⌘GA◊IA←1
[9] →L2Δ◊□←' '◊□←(([(×/ρNMA)÷80),80)ρNMA,40 4ρ' '◊→L4Δ[ι3=FVA
[10] L4Δ:□←' '◊□←,NMA
[11] L2Δ:→E1Δ[ι(IΔ←IA+1)=1↑ρNMA
[12] →L3Δ[ιθ=(NΔΔ←NA←NMA[IA;])□ZZ DTA
[13] →L3Δ[ιGA=CGA◊NΔΔ←''
[14] →L2Δ◊□←'***CONFLICT: ',NA◊RLΔ 1
[15] L3Δ:→L2Δ◊□EX NΔΔ◊DXΔ NA◊GA □XR NΔΔ
[16] E1Δ:PLΔ←θ◊RLΔ 1+PSΔ[□IO]-PLΔ
[17] →L1Δ◊GNA←1↓GNA
[18] EΔ:R←'□OFF◊□XFιθ'◊□IO←1

```

▽

▽DXΔ XΔ;DΔ;NΔ;NMA;OΔ

```

[1] →(VΔΔ,FΔΔ,VΔ,VΔ,VΔ,A2Δ)[XΔ □ZZ DTA]
[2] FΔΔ:□EX NΔΔ◊RLΔ 2+NΔ←1↑ρDΔ←□CR XΔ
[3] DΔ←(6 1 0⌘(NΔ,1)ριNΔ),DΔ
[4] DΔ[;(3-ρ⌘1+NΔ),4 5]←(NΔ,3)ρ'[]'
[5] DΔ[0;ι7]←' ▽ '
[6] □←DΔ
[7] FΔ:→EΔ◊□←' ▽ '
[8] VΔ:RLΔ 2+1[×/1↓ρDΔ←XΔ
[9] NMA←('',(⌘ρDΔ),((θ≠0\θρDΔ)/'''''),')'
[10] NMA[( ' '=NMA)/ιρNMA]←', '
[11] →EΔ◊□←⌘DΔ◊□←XΔ,' : ',NMA
[12] A2Δ:→EΔ◊□←XΔ,' α2'◊RLΔ 2
[13] VΔΔ:□←XΔ,' NO VALUE'◊RLΔ 2
[14] EΔ:□←''

```

▽

DTA [vector of type char of length 52; element size 2 byte(s)]

```

0630 5146 E01B 70A2 0B46 7B00 2546 7500 CF30 D725 C7F9 30CF FAD0 25F9 31FA 46EB
07B0 2B46 CE00 3C11 48AC 0B2E 0036 013D 1E01 4634 073D 3E00 4601 1D2E 2036 300E
0246 ED03 2BDF 15E7 0D3E 0211 2B3E 01C3 B033 3E04 2546 D100 2410 2BD7 353E 03C2
2402 2B3E 0507 0066

```

CGA [numeric vector of length 1; element size 1 byte(s)]

6

▽LIST FN ;CR;L;R;T

```

[1] □PW←120◊□OU 1◊□IO←1
[2] CR←□CR FN
[3] L←(ρCR)[1]
[4] R←(L,2)ρ' ',2 0⌘ιL
[5] R←((L,1)ρ'[']),R,((L,2)ρ'['']),CR
[6] R[1;ι6]←T←' ▽ '
[7] □←R
[8] □←2 6ρT,6ρ' '

```

▽

HOW [31 by 3 array of type char; element size 1 byte(s)]

TAPE LISTER -USES □ZZ AND EASY

CAN'T COPY SELF v RUN UNDER AVS

TO USE : LIA GROUP-NUMBER(S)

∇ΔEX;TΔ ET

- [1] TΔ←''
- [2] □← $\frac{\square}{\square}$ ←TΔ \circ →('→∇'∈1↑TΔ←1□TΔ)/0 1
- [3] →2 \circ □←''

∇

NAMES IN GROUP 4:

CHK FAT TAP ROM RAM ERR RA2 RCS TBL

∇CHK;X;Y

- [1] X←□_1 (ι19)+1-□I0
- [2] Y←176733 173599 165295 175999 221948 163253 154356 166212 172482 175298 171720 160461
- [3] Y←Y,250427 171199 233973 221551 522240 522240 522240
- [4] →(0=x/ρX← $\frac{\square}{\square}$ (Y≠X)/2 19ρ'MMMBBBBBBBBBBBBBBBB0120123456789ABCDEF')/GOOD
- [5] 'MEMORY BAD'
- [6] X
- [7] →0
- [8] GOOD:'MEMORY OK'

∇

∇FAT;MOD;I;T;K

- [1] □XFι0 \circ 5 □XR'RAM ROM TAP ERR RA2 RCS TBL'
- [2] MOD←5↑6ι8□'MODEL 782EF '
- [3] TBL[12 13 14]←522240 \circ →('EF'∧.= $\bar{2}$ ↑MOD)/4
- [4] TBL[5 6 10]←221948 163253 175298 \circ →(70> $\frac{\square}{\square}$ $\bar{2}$ ↑11□'SERIAL NO: ')/5
- [5] RAE←((K←('0248'=MOD[2])/0 2 4 8),8)ρ0 \circ ROE←19ρ0 \circ TPE←0 0
- [6] →(0=T← $\bar{1}$ +ι012'ιMOD[3])/NOT
- [7] □←'MOUNT ',MOD[3], ' SCRATCH TAP',T↑'ES'
- [8] I←'Y'≠(18□'LONG INITIALIZE? YES')[18]
- [9] (ι0)□XI[2]I \circ →(0=T-1)/NOT \circ □XS 0 \circ (ι0)□XI I
- [10] NOT:I←0
- [11] NT:→NT \circ □PT←0 \circ ERR \circ □PT←20 \circ I←I+1 \circ TAP \circ RAM \circ ROM

∇

∇TAP;G;U

- [1] 1 □XW'ROE RAE TPE I' \circ →(0≠10|I)/2 \circ U←1 \circ →(T=0)/0
- [2] B←A←(?20)ρ.1×10?30000 \circ G←1+?100
- [3] G □XW[U]'A'
- [4] G □XR[U]'A'
- [5] TPE[U]←TPE[U]+0≠+/A≠B
- [6] →((T=U←U+1),1)/2 0 \circ □EX'A B'

∇

∇ROM;U

- [1] U←1
- [2] ROE[U]←ROE[U]+TBL[U]≠U □ZZ RCS
- [3] →(19>U←U+1)/2

∇

∇RAM;X;Y;R;Z

```
[1] Y←8192+K×1024→(0=K)/0
[2] Z←7168+1024×19×X←8246
[3] RL:R←256 256 65536TX □ZZ RA2
[4] →(R[3]=Y)/0
[5] →((1↑ρRAE)←X←((R[3]≤Z)/19)[1])/ERR
[6] RAE[X;]←(≠/(8ρ2)T2↑R)+RAE[X;]
[7] →RL×X←1+R[3]
[8] ERR:'MEMORY SIZE WRONG IN ''MODEL''
[9] →
```

∇

∇ERR;X;E;N;RE

```
[1] X←'0123456789'◦E←0
[2] □←'AFTER ',X[1+10 10 10 10TI],' PASSES:'
[3] →(0=+/TPE)/R1
[4] □←'TAPE ERRORS: UNIT 1: ',X[1+10 10 10TTPE[1]]
[5] E←1◦□←'UNIT 2: ',X[1+10 10 10TTPE[2]]
[6] R1:→(0=+/ROE)/R2
[7] RE←(0≠ROE)×Q2 19ρ(119),ROE
[8] □←'ROM NO., ERRORS:'
[9] E←2◦□←RE
[10] R2:→(0=+/+/RAE)/R4
[11] RE←9 2ρ'2024282C3034383C40'◦E←2+N←1
[12] RL:→(0=+/RAE[N;])/R3
[13] □←'RAM ADDRESS ',RE[N;],'00,'
[14] □←RAE[N;]
[15] R3:→(9>N←N+1)/RL
[16] R4:□←'NO ERRORS'◦→(0≠E)/0
```

∇

RA2 [vector of type char of length 41; element size 2 byte(s)]

2506 3D2D 1E20 2621 0E15 4653 0046 3207 46F6 0746 E007 4657 0846 C800 3C02 48A2
0B2E 2036 07C7 30F7 E846 2120 FADD E62E 2036 05F9 30F8 30FB 30FC 4470 08D7 0E00
F9C7 B90B 0848 2420 FA15 3D46 3002 3544 2120

RCS [vector of type char of length 48; element size 2 byte(s)]

253D 4642 1546 3207 46F6 0746 E007 46CD 0948 BB0B 46B2 0E35 25EA 3D25 0630 2D1E
2026 210E 3046 5300 352E 1814 0444 2120 402B 2004 0302 0202 E8A8 0202 0202 51A8
C8D0 F087 6204 006A 0600 D8C5 15AD 24F8 C368 3420 2E20 3606 FA30 F930 F844 7008

TBL [numeric vector of length 19; element size 3 byte(s)]

180341 173599 165295 175999 221880 162807 155750 166212 172482 174713 171720
131857 244870 257444 522240 522240 522240 522240 522240

NAMES IN GROUP 8:

PL0 AXE PLT DEL V1 V2 V3 V4

∇S PLOT W;C;L;0;H;YY;YA;XA;YX;VV;V

```
[1] C←1↑15□'PLOT CHARACTER:◦'◦□I0←0
[2] L←1↑ρW◦□I0←0←H←0◦□OUT 1◦□PW←132
[3] W←W-2|W←|W×(L,2)ρS×120 96÷( [≠W) - [≠W
[4] YA←AXE W[;0]◦XA←4+AXE W[;1]
[5] VV←V←|/(W←W-(L,2)ρ|≠W) [;1]
[6] YA←YA-2|YA◦→NYA[ι0>YA
[7] □←YY←((|6×S[1]),1)ρ'|'◦□←'Y'◦DEL YA,V
[8] ◦□OUT 1,72+|YA÷256◦□B0 256|YA←YA+6◦□←YY◦DEL 0,V-4
[9] NYA:XA←XA-2|XA◦→LOOP[ι0>XA
[10] □←'X'◦DEL(V←4+|/W[;0]),XA
[11] ◦□OUT 1,72+|V÷256◦□B0 256|V←0[V←V-2|V+4
[12] YX←□←(|10×S[0])ρ'-'◦DEL 0,16
[13] ◦□OUT 1,128+|XA÷256◦□B0 256|XA←0[XA-20◦□←YX◦DEL 6,16
[14] LOOP:DEL W,0
```

∇

∇R←AXE B;HV;LV

```
[1] R←1◦→ι0≥LV×|/B◦R←|LV←|/B
```

∇

PLT [4 by 65 array of type char; element size 2 byte(s)]

```
F4EB 0668 2D06 4E84
F815 0600 8BF8 46C8
003C 0340 AC0B 46AD
0028 0638 2D1E 2026
210E 3F46 5300 2E21
3633 C753 453C 4248
5720 4621 2046 AD00
0688 2D1E 2026 210E
B046 5300 46E0 07B0
2B2E 00F5 3D3D 4657
0868 9D20 1640 4659
2046 5708 1688 6859
2046 5920 4621 2044
0226 071A 1C13 181E
0F1C 1513 1820 0B16
130E 2719 1F1E 1A1F
1E27 0E0F 2013 0D0F
2E20 3614 C73C 6C60
2D20 0627 D046 AD00
2806 772D C22D C7B0
504E 20D0 46AD 0028
06E3 2DC2 247F 2DC7
464E 2015 C7D0 46A9
20C2 0257 0620 5507
3525 3525 3D46 8B20
3DC6 94F0 C59B E840
7620 C22C 08D0 A896
F006 009D E846 A920
C657 C524 07B2 5507
C0C0 C0C0 C0C0 C0C0
C0C0 2E20 3600 C7B0
70A3 2036 08C7 24FE
31EF F007 06E0 5544
```

BB0B 06E0 5544 BB0B
45C8 2403 2C01 44B9
20C0 C0C0 C0C0 C0C0
48C5 20C1 24E0 3CE0
2B44 A920 06E0 5546
AD00 066A 2D44 C40B
45C8 2403 2C01 484E
20C1 24E0 3CE0 4821
2046 FF09 2E20 3614
D048 4020 3E59 0725
2E21 362C C7B0 484B
2011 25FA 0746 AD00
066A 2D44 C40B 46AD
0006 722D 44C4 0B30
3132 3334 3536 3738
3946 6162 6364 6566
6768 696A 6B6C 6D6E
6F70 7172 7374 7576
7778 797A 484C 202E
4023 2425 5E26 2A28
2900 822D 5F3D 2B50
8444 534D 864F 5451
882F 3F8A 5955 424E
4549 2C52 8C8E 905B
3C5D 9294 3B27 3A22
4A96 4B3E 4741 5743
5658 5A21 989A 9C9E
3EB0 A028 5429 5450
4F2E 4B2F 5F3F 5F4F
4D4F 5F4F 3F48 4D47
4D43 4A42 4A2C 5F4C
2B4C 4B4E 4A4B 4E4A

∇DEL A

- [1] →1[1241≠1↑□0U10
- [2] A □ZZ[C]PLT
- [3] →3[1241≠1↑□0U10

∇

V1 [2 by 25 numeric array; element size 8 byte(s)]

CE0000000000000000C CE0000000000000000
CE0000000000000000B C04241F7064C1A31
CE0000000000000000A C0800000000000000F
CE00000000000000009 C0B504F333F9DE67
CE00000000000000008 C0DDB3D742C26552
CE00000000000000007 C0F746EA3A45F8AB
CE00000000000000006 CE000000000000001
CE00000000000000005 C0F746EA3A45F8A8
CE00000000000000004 C0DDB3D742C2654C
CE00000000000000003 C0B504F333F9DE5D
CE00000000000000002 C0800000000000000F
CE00000000000000001 C04241F7064C1A25
4E0000000000000000 4E0000000000000000
4E00000000000000001 404241F7064C1A41

```
4E0000000000000002 408000000000000004
4E0000000000000003 40B504F333F9DE67
4E0000000000000004 40DDB3D742C26559
4E0000000000000005 40F746EA3A45F8A8
4E0000000000000006 4E0000000000000001
4E0000000000000007 40F746EA3A45F8A4
4E0000000000000008 40DDB3D742C2654C
4E0000000000000009 40B504F333F9DE5D
4E000000000000000A 407FFFFFFFFFFFFEE
4E000000000000000B 404241F7064C1A31
4E000000000000000C CE0000000000000000
```

V2 [2 by 25 numeric array; element size 2 byte(s)]

```
32780 144
32779 121
32778 100
32777 81
32776 64
32775 49
32774 36
32773 25
32772 16
32771 9
32770 4
32769 1
0 0
1 1
2 4
3 9
4 16
5 25
6 36
7 49
8 64
9 81
10 100
11 121
12 144
```

V3 [2 by 25 numeric array; element size 2 byte(s)]

```
32780 34496
32779 34099
32778 33768
32777 33497
32776 33280
32775 33111
32774 32984
32773 32893
32772 32832
32771 32795
32770 32776
32769 32769
0 0
1 1
```

2 8
 3 27
 4 64
 5 125
 6 216
 7 343
 8 512
 9 729
 10 1000
 11 1331
 12 1728

V4 [2 by 25 numeric array; element size 8 byte(s)]

```
CE0000000000000000C 403539B35884B1EC
CE0000000000000000B 4030D8DBBAECC4A0
CE0000000000000000A 402C7434FC16E713
CE00000000000000009 40280C16CF50A6EB
CE00000000000000008 4023A0D92D1B3C33
CE00000000000000007 401F32D44C4F62D4
CE00000000000000006 401AC2609B3C576D
CE00000000000000005 40164FD6B8C28103
CE00000000000000004 4011DB8F6D6A5129
CE00000000000000003 3FD65E3A477E486D
CE00000000000000002 3F8EF2C64FBEE143
CE00000000000000001 3F477C2CAE27747E
4E00000000000000000 4E0000000000000000
4E00000000000000001 3F477C2CAE27747E
4E00000000000000002 3F8EF2C64FBEE143
4E00000000000000003 3FD65E3A477E486D
4E00000000000000004 4011DB8F6D6A5129
4E00000000000000005 40164FD6B8C28103
4E00000000000000006 401AC2609B3C576D
4E00000000000000007 401F32D44C4F62D4
4E00000000000000008 4023A0D92D1B3C33
4E00000000000000009 40280C16CF50A6EB
4E0000000000000000A 402C7434FC16E713
4E0000000000000000B 4030D8DBBAECC4A0
4E0000000000000000C 403539B35884B1EC
```

NAMES IN GROUP 13:
 STD STA VAR

∇R←STD X V

[1] $R \leftarrow \left(\left(\frac{+}{X-MN} \right) * 2 \right) \div \left((\rho X) - 1 \right) * 0.5 * MN \leftarrow \left(\frac{+}{X} \right) \div \rho X$
 ∇

∇STAX;H;M;N;W;X;V

[1] □←'DATA IS ', ⌘X←, Ⓛ11↓□'ENTER DATA: '
 [2] □←'SAMPLE SIZE: ', ⌘N←ρX←X[ⓁX]
 [3] □←'MAXIMUM: ', ⌘X[N]

[4] $\square \leftarrow$ 'MINIMUM: ', $\bar{X}[1]$
 [5] $\square \leftarrow$ 'NO. OF POSITIVE VALUES: ', $\bar{X} + / 0 < X$
 [6] $\square \leftarrow$ 'NO. OF NEGATIVE VALUES: ', $\bar{X} + / 0 > X$
 [7] $\square \leftarrow$ 'RANGE: ', $\bar{X} - / X[N, 1]$
 [8] $\square \leftarrow$ 'MEAN: ', $\bar{M} \leftarrow (+ / X) \div N$
 [9] $\square \leftarrow$ 'VARIANCE: ', $\bar{V} \leftarrow (+ / (X - M) * 2) \div N - 1$
 [10] $\square \leftarrow$ 'STANDARD DEVIATION: ', $\bar{V} * 0.5$
 [11] $\square \leftarrow$ 'MID-MEAN: ', $\bar{X} (+ / (-H) \downarrow H \downarrow X) \div N - 2 \times H \leftarrow [N \div 4]$
 [12] $\square \leftarrow$ 'MEAN DEVIATION: ', $\bar{X} (+ / |X - M) \div N$
 [13] $\square \leftarrow$ 'MEDIAN: ', $\bar{X} 0.5 \times X [[N \div 2] + X[1 + [N \div 2]$
 [14] $\rightarrow ((N > \rho M) \wedge 0 < \rho M \leftarrow X [(W = [/ W \leftarrow N | V - \bar{1} \phi V) / V \leftarrow (X \neq 1 \phi X) / \downarrow N]) / 16$
 [15] $M \leftarrow X [\downarrow 0 = \rho M]$
 [16] $\square \leftarrow$ 'MODE: ', \bar{M}
 [17] $\square \leftarrow$ 'HARMONIC MEAN: ', $\bar{X} \div (+ / \div X) \div N$
 [18] $\rightarrow 20 \times \downarrow X \lambda . \leq \rho M \leftarrow \downarrow 0$
 [19] $M \leftarrow * (+ / \otimes X) \div N$
 [20] $\square \leftarrow$ 'GEOMETRIC MEAN: ', \bar{M}
 [21] $\square \leftarrow$ 'QUADRATIC MEAN: ', $\bar{X} ((+ / X * 2) \div N) * 0.5$

▽

▽R←VAR X

[1] $R \leftarrow (+ / (X - MN) * 2) \div ((\rho X) - 1) \circ MN \leftarrow (+ / X) \div \rho X$

▽

NAMES IN GROUP 19:

ER BAL MOR PAY IΔ0 INΔ EΔ

▽R←ER X

[1] $R \leftarrow \bar{1} + (1 + \div / 2 \uparrow X) * \div / 1 \downarrow X$

▽

▽Z←BAL;B;I

[1] $Z \leftarrow I \Delta 0$
 [2] $Z \leftarrow Z, \downarrow (A \in '.0123456789') / A \leftarrow 29 \downarrow \square$ 'NO. OF PYMT. PERIODS ELAPSED: '
 [3] $Z \leftarrow Z, ER Z[2 3], 12 2$
 [4] $B \leftarrow (\times / Z[1 6]) \div 1 - (1 + Z[6]) * - Z[4]$
 [5] $I \leftarrow (1 + Z[6]) * | / Z[4 5]$
 [6] $Z \leftarrow .01 \times [100 \times (I \times 1 \uparrow Z) - (I - 1) \times B \div Z[6]$

▽

▽Z←MORT

[1] $Z \leftarrow I \Delta 0$
 [2] $Z \leftarrow .01 \times [100 \times PAY Z$

▽

▽P←PAY X

[1] $P \leftarrow X[1] \times P \div 1 - (1 + P \leftarrow ER X[2 3], 12) * - X[4]$

▽

∇X←IΔ0

- [1] X←INΔ 'PRINCIPAL AMOUNT: '
- [2] →3+1>1↓X←X, INΔ 'NOMINAL INTEREST RATE: '
- [3] X[2]←X[2]÷100
- [4] X←X, INΔ 'NO. OF COMPOUND PERIODS/YR: '
- [5] X←X, INΔ 'TOTAL NO. OF PYMT. PERIODS: '

∇

∇R←INΔ X

- [1] R←(X←' ×.0123456789')/X←(ρX) ↓X

∇

∇R←EDΔ A

- [1] @FORMAT NUMERIC OUTPUT FOR FINANCIAL REPORTS
- [2] @EG. 1E6 PRINTS AS \$1,000,000.00
- [3] @ -1E6 PRINTS AS (\$1,000,000.00)
- [4] →7×17≥ρR←'\$', 0 2 0 |A
- [5] →7×11≥ρR←('6↓R), ', ', -6↑R
- [6] R←('10↓R), ', ', -10↑R
- [7] →0°R←' ', R, ' '°→8×1-1=xA
- [8] R←(' ', R, ' ')

∇

NAMES IN GROUP 40:

INV DTR PER

∇Z←INV M;I;J;N

- [1] M←(1 0+ρM)ρ(, ϕM), ~J←1<1I←1↑ρM
- [2] M←1ϕ(J, 1)ϕM-(J×M[;1])°×M[1;]←M[1;]÷1ρM
- [3] →2×10≠I←I-1
- [4] Z←M[;1]↑ρM

∇

∇Z←DTR M;J;Q 1

- [1] →(1=ρ, M)ρ0, Z←, M
- [2] →L2×1(2=ρρM)Λ=/ρM
- [3] →0°□→'ILLEGAL STRUCTURE'
- [4] L2:→0×1(1↑ρM)<J←(M[1;]=0)ιC←, 0
- [5] M←(J-1)ϕM
- [6] L6:M←M-M[;1]°×M[1;]÷Z←M[1;1]
- [7] Z←('1*J-1)×Z×DTR 1 1↓M

∇

∇P←PER M;Z

- [1] →2×M>, P←1 1ρ1
- [2] P←PER M-1
- [3] P←(1 0+ϕρP)ρ(, ϕP), (1↑ρP)ρM
- [4] Z←, ϕ((1↑ρP), M)ρ-1-ιM

[5] P←ZΦ((M,1)×ρP)ρP

∇

NAMES IN GROUP 50:

ADD MUL COS HOR G

∇ADD Z;TR;TN;X;A;N;T1

```
[1] □PT←25◦T←TN←TR←0
[2] N←23↓□'HI. WHAT IS YOUR NAME? '
[3] NAME←1 6ρ(N,(6-N1)ρ' ')◦N1←6↓ρN
[4] N;' , ITS NICE TO MEET YOU.'
[5] 'THIS IS AN ADDING GAME.'
[6] 'IF YOU GET 100 ON THE SCORE,'
[7] 'YOU WILL PLAY OUR HORSE RACE.'
[8] 'IF YOU DO NOT GET 100'
[9] 'YOU CAN GET ANOTHER CHANCE'
[10] 'BY GETTING 10 NEW EXAMPLES.'
[11] 'LETS BEGIN, ';N 0
[12] X←2?Z◦T1←0◦→(TN>10)/E◦TN←TN+1
[13] X[1];' + ';X[2];' = '
[14] A←□
[15] →(A=+/X)/R
[16] W:'SORRY, THATS WRONG'◦T1←T1+1
[17] 'TRY AGAIN.'◦→(T1=2)/W2◦→(TN>10)/E◦TN←TN+1
[18] →13
[19] R:G[?5;];' ';N ◦TR←TR+1
[20] →12
[21] W2:'THE ANSWER IS: ';X[1];'+';X[2];'=';+/X
[22] →12
[23] E:'YOUR SCORE IS: ';TR×10;' PERCENT'
[24] 'CONGRATULATIONS. '◦→(TR<10)/W3
[25] →0◦HORSE
[26] W3:'SORRY YOU DIDN'T WIN.'
[27] 'LETS TRY AGAIN.'◦TR←0◦TN←0◦→(T=2)/W4◦T←T+1 +
[28] →12 S
[29] W4:'GIVE SOMEONE ELSE A CHANCE NOW.'
[30] 'YOU CAN GO AGAIN LATER ';N
[31] →0
```

∇

∇MULTIPLICATION

```
[1] 'THIS IS A MULTIPLICATION DRILL.'◦□PT←20
[2] N←23↓□'GIVE RANGE OF NUMBERS: '
[3] 'TYPE -STOP- TO END DRILL.'
[4] STOP←2.71928
[5] Y←?N
[6] Z←?N
[7] Y;' × ';Z;' = ____?'◦□PT←50
[8] A←□
[9] →0×1A=STOP
[10] →(A=Y×Z)/R◦□PT←15
[11] 'SORRY. THAT IS NOT CORRECT.'
```



```

[12] 'TRY AGAIN.'
[13] Y;' x ';Z;'='___?' °□PT←50
[14] A←□ Δ
[15] →(A=Y×Z)/R°□PT←15
[16] 'THE ANSWER IS: ';Y;' x ';Z;' = ';Y×Z
[17] →5
[18] R:'THAT''S RIGHT.'
[19] →5

```

∇

∇COST;B;TCT;NT;NS;ASS;NTE;ATS;ATU;PHR;CC;TC;CCC;DS;ADP;CDP;TOT;THN;SCH

```

[1] ①THIS IS A CAI COST ANALYSIS°□PT←15
[2] 'ARE YOU GOING TO RENT OR BUY'
[3] B←(B='R')°B←1↑16↓□'THE CAI SYSTEM?'
[4] 'HOW MANY COMPUTERS DO YOU WISH?'
[5] '(WHERE POSSIBLE, USE NUMERALS)'
[6] NT←□
[7] 'HOW MANY ADDITIONAL STAFF WILL'
[8] 'YOU NEED FOR THIS SYSTEM?'
[9] NS←□
[10] 'WHAT IS THE AVERAGE SALARY '
[11] 'OF THE ADDITIONAL STAFF?'
[12] ASS←□
[13] 'HOW MANY TEACHERS WILL BE '
[14] 'REPLACED BY THE CAI SYSTEM?'
[15] NTE←□
[16] →(NTE=0)/20°ATS←0
[17] 'WHAT IS AVERAGE YEARLY SALARY'
[18] 'OF THE TEACHER RELACED?'
[19] ATS←□
[20] 'WHAT IS THE AVERAGE NUMBER OF'
[21] 'HRS/WK EACH COMPUTER IS USED?'
[22] ATU←□
[23] PHRASE←'WHAT IS THE MONTHLY COST OF '
[24] →B/26
[25] PHRASE←'WHAT IS COST OF '
[26] PHRASE;'MASTER STATION?'
[27] CC←□
[28] PHRASE;'EACH COMPUTER?'
[29] TC←□
[30] 'WHAT IS THE VALUE OF THE ' E
[31] 'SPACE USED BY THE SYSTEM?'
[32] CCC←□
[33] →B/38
[34] 'WHAT IS THE NUMBER OF MONTHS '
[35] 'USED FOR THE DEPRECIATION '
[36] 'SCHEDULE FOR THE EQUIPMENT?'
[37] DS←□
[38] 'DO YOU PLAN TO USE EQUIPMENT'
[39] →(ADP='N')/44°CDP←0°ADP←1↑24↓□'FOR ADMINISTRATIVE D.P.?'
[40] 'WHAT PERCENTAGE OF THE TOTAL'
[41] 'EXPENDITURE FOR SYSTEM WILL BE'
[42] 'ALLOCATED TO ADMIN. D.P.?'
[43] CDP←□
[44] →B/47

```

```

[45] CC←CC÷DS
[46] TC←TC÷DS
[47] TOTAL←(NT×TC)+CC+(NS×ASS÷12)-(NTE×ATS÷12)
[48] THN←ATU×(NT÷7)×365÷12
[49] SCH←TOTAL÷THN
[50] SCH←SCH-(0.01×CDP×SCH)
[51] 'THE TOTAL COST PER STUDENT HOUR'
[52] □PT←0◦TCT←(SCH<0)/'SAVED.'
[53] 'IS ';(|(|SCH×100)+.5))÷100;' DOLLARS ';TCT

```

▽

▽HORSE;P;R;W

```

[1] 'THEY''RE AT THE POST.'◦□PT←2×ρP←5ρ0
[2] 5 1ρ15◦□PT←4
[3] 'THEY''RE OFF!!!!'◦□PT←8
[4] ((1↑P←30[P+?9 9 9 9 9]ρ' ');1
[5] (P[2]ρ' ');2
[6] (P[3]ρ' ');3
[7] (P[4]ρ' ');4
[8] (P[5]ρ' ');5
[9] →4×130>[/P
[10] W←,(P=30)/15
[11] R←-/2↑P←P[ΨP]
[12] P←((R=0)/'A NOSE'),((R>0)/'0123456789'[1+R]),' LENGTH'),((1<R)/'S'),' IS NO. '
[13] 'AND THE WINNER'◦□PT←10
[14] 'BY ',P;W[?ρW]◦□PT←0

```

▽

G [10 by 5 array of type char; element size 1 byte(s)]

```

*TERRIFIC*
** GREAT
* YIPPEE *
** WOW **
RIGHT!!!

```

NAMES IN GROUP 60:

GPA IPS TER APL XFE SYI YYI YYO SYO

GPA [vector of type char of length 10; element size 1 byte(s)]

I.P. SHARP

▽IPS;A

```

[1] SYI◦SYO
[2] WAIT:'PHONE 1-416-360-1200'◦□PT←10
[3] →WAIT[12>4]1↑□OU10
[4] ◦XFER')'◦□BO 52◦□DL 1
[5] A←XFER')3885760:NEW'
[6] □PT←0
[7] 31↑A
[8] 4↓33↓A F

```

▽

TER [vector of type char of length 21; element size 1 byte(s)]
SYSTEM APL/2741/CORR.

∇APL;L;L1;L2;N;BC

```
[1] ⓂTERMINAL SIMULATOR
[2] L←' '∘BC←⊂Y 108
[3] IN:L1←(ρL)↓⊂L∘⊂IN 0
[4] L←L2←XFER L1
[5] DLP:→IN[ι(⊂1+ρL)≤N←(LιBC)-⊂IO
[6] N↑L
[7] N←((BC≠L←N↓L)ι1)-⊂IO
[8] →DLP∘L←N↓L
[9] →IN
```

∇

∇R←XFER X

```
[1] ⓂIN 1↑⊂OU ⊂YA 1 31 Δ0
[2] R←⊂' '∘⊂←X
[3] Ⓜ'IN CASE ATTENTION'
```

∇

∇SYI

```
[1] →0×ι0≠1↑⊂IN ⊂YA ('I'⊂YW'YYI'),255-64∘'I'⊂YXι0
[2] +'NO SUCH INPUT DEVICE'
```

∇

YYI [34 by 1 array of type char; element size 8 byte(s)]

```
8100000007410152 78820600002D1F1D 3D003D00032E3D1F 1C2D3C341F27501E
140419164205560F 1A6C6C6C6C022818 36246C6C6C061315 1B88836C87011722
11001D1223071C0E 556C6C6C6C03201F 1009210C34080B0D 4B82846C6C27523F
592B3E26432C5849 386C6C6C6C295C48 37636C6C6C2D4A5B 4088836C87643C62
5D313B25452E4C3A 576C6C6C6C2A6146 0A305F47352F5E60 5182846C6C000000
08CFC8C708C308CF C84300DFE0C700CF D88248CF0843004B 444788C328533023
2853000338030043 3A03387338422003 3803205B3803301B 2803202BC84300DF
584B08CFF8C788FF E84308CF68C7ECCF FCCFC8FFEC4308DF FC47CCDF00030003
0001200300032003 2001204300010003
```

YY0 [18 by 1 array of type char; element size 8 byte(s)]

```
4100000007410152 7882060000801F1D 3D003D00032E3D1F 1C80808080242010
3004081828383473 39363A2A0A332326 19031A062112050B 1B29250232313522
2714664600115070 4448586878746482 82377713534B826A 65618245425B8207
4782677276524A59 3B69828282017B41 82822B096B494382 5A516379757A7162
5460828282827F82 8282000000000000
```

∇SY0

```
[1] →0×ι0≠1↑⊂OU ⊂YA ('0'⊂YW'YY0'),255-128+32∘'0'⊂YXι0
[2] +'NO SUCH OUTPUT DEVICE'
```

∇

NAMES IN GROUP 61:

YCI TER YI YO YCO YYI YYO COM XMX STS SYI SYO
APL XFE MAO MAI VOU FMT NVE WID SET APP

YCI [4 by 11 numeric array; element size 2 byte(s)]

7 65 1 181
120 130 6 0
0 0 45 31
29 0 0 0
61 0 0 0
0 61 0 0
0 3 46 61
31 0 0 0
28 0 0 0
45 60 0 0
52 31 0 0

TER [vector of type char of length 21; element size 1 byte(s)]

SYSTEM APL/2741/CORR.

YI [numeric vector of length 128; element size 1 byte(s)]

39 80 30 20 4 25 22 66 5 86 15 26 108 108 108 108 2 40 24 54 36 108 108 108 6 19
21 27 136 131 108 135 1 23 34 17 0 29 18 35 7 28 14 85 108 108 108 108 3 32 31 16
9 33 12 52 8 11 13 75 130 132 108 108 39 82 63 89 43 62 38 67 44 88 73 56 108 108
108 108 41 92 72 55 99 108 108 108 45 74 91 64 136 131 108 135 100 60 98 93 49 59
37 69 46 76 58 87 108 108 108 108 42 97 70 10 48 95 71 53 47 94 96 81 130 132 108
108

YO [numeric vector of length 109; element size 1 byte(s)]

36 32 16 48 4 8 24 40 56 52 115 57 54 58 42 10 51 35 38 25 3 26 6 33 18 5 11 27 41
37 2 50 49 53 34 39 20 102 70 0 17 80 112 68 72 88 104 120 116 100 130 130 55 119
19 83 75 130 106 101 97 130 69 66 91 130 7 71 130 103 114 118 82 74 89 59 105 130
130 130 1 123 65 130 130 43 9 107 73 67 130 90 81 99 121 117 122 113 98 84 96 130
130 130 130 130 130 130 130

YCO [4 by 11 numeric array; element size 2 byte(s)]

7 65 1 181
120 130 6 0
0 0 128 31
29 0 0 0
61 0 0 0
0 61 0 0
0 3 46 61
31 0 0 0
28 0 0 0
128 128 0 0
128 128 0 0

YYI [34 by 1 array of type char; element size 8 byte(s)]

81000000074101B5 78820600002D1F1D 3D003D00032E3D1F 1C2D3C341F27501E
140419164205560F 1A6C6C6C6C022818 36246C6C6C061315 1B88836C87011722
11001D1223071C0E 556C6C6C6C03201F 1009210C34080B0D 4B82846C6C27523F
592B3E26432C5849 386C6C6C6C295C48 37636C6C6C2D4A5B 4088836C87643C62

5D313B25452E4C3A 576C6C6C6C2A6146 0A305F47352F5E60 5182846C6C000000
08CFC8C708C308CF C84300DFE0C700CF D88248CF0843004B 444788C328533023
2853000338030043 3A03387338422003 3803205B3803301B 2803202BC84300DF
584B08CFF8C788FF E84308CF68C7ECCF FCCFC8FFEC4308DF FC47CCDF00030003
0001200300032003 2001204300010003

YY0 [18 by 1 array of type char; element size 8 byte(s)]

41000000074101B5 7882060000801F1D 3D003D00032E3D1F 1C80808080242010
3004081828383473 39363A2A0A332326 19031A062112050B 1B29250232313522
2714664600115070 4448586878746482 82377713534B826A 65618245425B8207
4782677276524A59 3B69828282017B41 82822B096B494382 5A516379757A7162
54608282827F82 8282000000000000

▽COMSHARE;P

[1] P←'900JMS:'◦IN 0
[2] SYI◦SYO
[3] T [YI[I0]0◦T[1+I0]←67◦T←YI[I0]0
[4] WAIT:'PHONE 1-416-678-6900'◦PT←10
[5] →WAIT[12>4|1↑OU10
[6] XFER'*'◦DL 2
[7] XFER(N←(P1:'))-I0↑P
[8] XFER P←'◦←(N+1)↓P
[9] XFER''
[10] XFER'APL'◦PT←0

▽

▽XMX X;A;B;YYA;YYB

[1] @MONITOR XFER ON HYTYPE
[2] ◦'O'YR'YYB'◦YA 1 31
[3] [←X◦'O'YR'YYB'◦OU B←YA 2 31
[4] R←''◦←X◦'O'YW'YYA'◦'O'YX10◦OU A
[5] [←R◦'O'YW'YYB'◦'O'YX10◦OU B
[6] ◦'O'YW'YYO'◦'O'YX10◦OU A

▽

▽STSC;P

[1] P←')1178328:'◦IN 0
[2] SYI◦SYO
[3] WAIT:'PHONE 1-416-360-8864'◦PT←10
[4] →WAIT[12>4|1↑OU10
[5] XFER''◦DL 5
[6] XFER'CAPLPLUS'◦B0 29
[7] XFER'PASSAPL'
[8] XFER')'
[9] XFER P←''◦←P◦PT←0

▽

▽SYI Y

[1] →0×10≠1↑IN YA ('I'YW'YYI'),255-64◦'I'YX10
[2] +'NO SUCH INPUT DEVICE' A

▽

∇SY0

```
[1] →0×10≠1↑□OU □YA ('0'□YW'YY0'),255-128+32°'0'□YX10
[2] +'NO SUCH OUTPUT DEVICE'
```

∇

∇APL

```
[1] @TERMINAL SIMULATOR
[2] L←' '°BC←□Y 108
[3] IN:L1←(ρL)↓□L°□IN 0
[4] L←L2←XFER L1
[5] DLP:→IN[ι(¯1+ρL)≤N←(LιBC)-□IO
[6] N↑L
[7] N←((BC≠L←N↓L)ι1)-□IO
[8] →DLP°L←N↓L
[9] →IN
```

∇

∇R←XFER X

```
[1] °□IN 1↑□OU □YA 1 31 Δ0
[2] R←□' '°□←X
[3] °'IN CASE ATTENTION'
```

∇

∇R←MΔOUT X;I;N

```
[1] →R←0×ι(' '≠0\0ρX)v(2≠ρρX)vWIDTH<¯1↑1,ρX
[2] →R←VOUT FMT ρX
[3] →END[ι0=x/ρX
[4] N←1↑ρX°I←1°'ORIGIN 1'
[5] LP:→R←VOUT X[I;]
[6] →LP[ιN≥I←I+1
[7] END:R←ι0
```

∇

∇R←MΔIN X;I;N;L;E

```
[1] →R←0×ι2≠ρN←NVEVAL L←XFER X
[2] →0×ι0=x/ρR←Nρ' '°I←1°'ORIGIN 1'
[3] LP:→ERR[ι(N[2]<ρL)v0=ρL←XFER L
[4] R[I;]←N[2]↑L
[5] →LP[ιN[1]≥I←I+1
[6] →0×ι0=ρL←XFER L T
[7] ERR:→LP[ι(N[1]≥I)∧0<ρL←XFER' '
[8] R←(1,ρR)ρR
```

∇

∇R←VOUT X;Y

```
[1] Y←XFER X
[2] →R←0×ι(ρY)≠ρX
[3] R←0×ιYv.≠X
```

∇

∇R←FMT X
 [1] R←⌘X
 ∇

∇R←NVEVAL X
 [1] R←⌘X
 [2] →0×ι(θ=0\0ρR)∧1=ρρR
 [3] R←(θ=ρρR)/,R
 ∇

∇R←WIDTH
 [1] R←⌘PW
 ∇

∇SETUP;INT;ALF;ΔIO;A
 [1] →OK[ι0≠1↑⌘OU A←⌘YA 193,255-32
 [2] +'NO EIA INTERFACE CONNECTED'
 [3] OK:⌘IO←0◦ΔIO←⌘IO
 [4] YCO ⌘Y0[0]ι11
 [5] Y0 ⌘Y0[2]ALF←⌘Yι109
 [6] →SI[ι~INT←32≤64|1↑1↓⌘IN A◦⌘OU A
 [7] Y0 ⌘YI[2]ALF
 [8] SI:YCI ⌘YI[0]ι11
 [9] YI ⌘YI[1]ι128
 [10] ⌘IO←ΔIO
 ∇

∇APP;L;BC;L1;L2;YYB
 [1] @TERMINAL SIMULATOR
 [2] L←' '◦BC←⌘Y 108◦'0'⌘YXι0◦⌘OU 1◦'0'⌘YR'YYB'
 [3] IN:⌘←L1←(ρL)↓⌘L◦⌘IN 0
 [4] L←L2←XFER L1◦'0'⌘YW'YYB'◦'0'⌘YXι0◦⌘OU 2
 [5] ◦'0'⌘YXι0◦⌘OU 1 U
 [6] DLP:→IN[ι(⌘1+ρL)≤N←(LιBC)-⌘IO
 [7] ⌘←N↑L
 [8] N←((BC≠L←N↓L)ι1)-⌘IO
 [9] →DLP◦L←N↓L
 [10] →IN
 ∇

NAMES IN GROUP 62:

COM XM SET BC YCO YCI YO YI ALF WHO STS XFE

∇COM
 [1] SETUP◦⌘PT←10
 [2] WAIT:'PHONE 1-416-678-6900'

```

[3]  -WAIT[12>4]1↑0U10
[4]  XM'*'°DL 2
[5]  XM'900JMS'
[6]  XM'37'
[7]  XM''
[8]  XM'APL'
[9]  PT←0
[10] L0:XM ''°IN 0
[11]  →L0
  ▽

```

```

  ▽R←XM X
[1]  °IN YA 1 31
[2]  R←''°←X
[3]  R←(BC≠R)/R
  ▽

```

```

  ▽SETUP;INT;A
[1]  I0←0°'I'YX10°'0'YX10°0U(A←YA 1 31),1
[2]  °OU A,0°YCO Y0[0]11
[3]  Y0 Y0[2]ALF
[4]  -SI[1~INT←32≤64|1↑1↓IN A°OU A,6
[5]  Y0 YI[2]ALF
[6]  SI:YCI YI[0]11
[7]  YI YI[1]128
[8]  °OU A,0°BO 52
  ▽

```

BC [scalar of type char: element size=1 byte(s)]
trouble:

```

YCO [4 by 11 numeric array; element size 2 byte(s)]
7 65 1 181
120 130 6 0
0 0 128 31
29 0 0 0
61 0 0 0
0 61 0 0
0 3 46 61
31 0 0 0
28 0 0 0
128 128 0 0
128 128 0 0

```

```

YCI [4 by 11 numeric array; element size 2 byte(s)]
7 68 1 181
120 130 6 0
0 0 45 31
29 0 0 0
61 0 0 0
0 61 0 0
0 3 46 61

```


31 0 0 0
28 0 0 0
45 60 0 0
52 31 0 0

Y0 [numeric vector of length 109; element size 1 byte(s)]
36 32 16 48 4 8 24 40 56 52 115 57 54 58 42 10 51 35 38 25 3 26 6 33 18 5 11 27 41
37 2 50 49 53 34 39 20 102 70 0 17 80 112 68 72 88 104 120 116 100 130 130 55 119
19 83 75 130 106 101 97 130 69 66 91 130 7 71 130 103 114 118 82 74 89 59 105 130
130 130 1 123 65 130 130 43 9 107 73 67 130 90 81 99 121 117 122 113 98 84 96 130
130 130 130 130 130 130 130

YI [numeric vector of length 128; element size 1 byte(s)]
39 80 30 20 4 25 22 66 5 86 15 26 108 108 108 108 2 40 24 54 36 108 108 108 6 19
21 27 136 131 108 135 1 23 34 17 0 29 18 35 7 28 14 85 108 108 108 108 3 32 31 16
9 33 12 52 8 11 13 75 130 132 108 108 39 82 63 89 43 62 38 67 44 88 73 56 108 108
108 108 41 92 72 55 99 108 108 108 45 74 91 64 136 131 108 135 100 60 98 93 49 59
37 69 46 76 58 87 108 108 108 108 42 97 70 10 48 95 71 53 47 94 96 81 130 132 108
108

ALF [vector of type char of length 109; element size 1 byte(s)]
0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ .-<=>=vΛvΛ+-
x:*@[[|!o~?/\/\↗↑↓LTeι,ρφθΩ←;-ΔΨ[[]()◦@':∇αωηυ>c"⊥,⊞⊟⊠⊡\$⊢⊣

WHO [vector of type char of length 8; element size 1 byte(s)]
COMSHARE

∇STSC;P

[1] 7 65 1 181 [YI[0] 0
[2] P←[']4620840:'◦[IN 0
[3] @'I' [YW 'YYI'◦'0' [YW 'YY0'◦[IN 1↑[OU [YA 193
[4] WAIT:'IN SF, PHONE 1-415-391-9325'◦[PT←10
[5] 'IN LA :(213) 629-1561/683-0451'
[6] 'IN SD: (714) 291-8700'
[7] →WAIT[ι2>4|^-1↑[OUι0
[8] XFER''◦[DL 5
[9] XFER'CAPLPLUS'◦[BO 29
[10] XFER'PASSAPL'
[11] XFER')'
[12] XFER P←''◦[←P
[13] [PT←0
[14] L0:XFE [']'◦[IN 0 E
[15] →L0

∇

∇R←XFE X

[1] ◦[IN [YA 1 31
[2] R←[']'◦[←X
[3] R←(BC≠R)/R

∇

NAMES IN GROUP 63:

YI Y0 YCI YCO YYI YY0 SY0 SYI

YI [numeric vector of length 128; element size 1 byte(s)]

132 108 108 108 137 108 108 108 131 108 108 108 108 130 108 108 108 108 108 108
108 108 108 108 108 108 108 108 108 108 108 108 39 100 41 42 43 44 45 46 47 48 88
87 75 52 40 66 0 1 2 3 4 5 6 7 8 9 86 85 81 53 92 67 80 94 71 96 58 73 10 93 37 74
89 91 38 60 72 62 56 64 76 59 63 70 97 95 98 69 99 108 108 108 54 49 82 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 108 106 108
55 132

Y0 [numeric vector of length 109; element size 1 byte(s)]

48 49 50 51 52 53 54 55 56 57 70 97 98 99 100 101 102 103 104 105 106 107 108 109
110 111 112 113 114 115 116 117 118 119 120 121 122 72 76 32 46 34 35 36 37 38 39
40 41 95 130 130 45 61 94 126 80 130 68 83 77 130 79 84 81 130 47 63 130 89 85 66
78 69 73 44 82 130 130 130 64 60 96 130 130 59 58 43 42 74 130 75 62 71 65 87 67
86 88 90 33 130 130 130 130 130 124 130 130

YCI [4 by 11 numeric array; element size 2 byte(s)]

39 176 70 82
72 130 6 0
0 8 13 10
8 0 0 0
0 0 0 0
0 0 0 0
0 0 10 0
128 0 0 0
128 0 0 0
0 7 0 0
0 0 0 0

YCO [4 by 11 numeric array; element size 2 byte(s)]

39 176 70 82
72 130 6 0
0 8 13 10
8 0 0 0
0 0 0 0
0 0 0 0
0 0 10 0
128 0 0 0
128 0 0 0
0 7 0 0
0 0 0 0

YYI [34 by 1 array of type char; element size 8 byte(s)]

A100000027B04652 48820600080D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276429
2A2B2C2D2E2F3058 574B342842000102 0304050607080956 5551355C43505E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 6C6C6C3631520B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6A6C3784303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
5A21828282827F7C 8282000000000000

YY0 [18 by 1 array of type char; element size 8 byte(s)]
 4100000027B04652 48820600080A0D08 00000000000A0080 8000070000303132
 3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
 797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
 3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
 5A21828282827F7C 8282000000000000

∇SY0

[1] →0×10≠1↑□OU □YA ('0'□YW'YY0'),255-128+32°'0'□YX10
 [2] +'NO SUCH OUTPUT DEVICE'

∇

∇SYI Y

[1] →0×10≠1↑□IN □YA ('I'□YW'YYI'),255-64°'I'□YX10
 [2] +'NO SUCH INPUT DEVICE' A

∇

NAMES IN GROUP 64:

DEM PET PIT ADS VT HT YYO CRT DM YYI CLR DPY

∇DEMO

[1] (33,1↓R)□Y0[□I0]0°R←□Y0[□I0]0°□I0←1
 [2] □←'MCM/700'°HT 30°□B0 12
 [3] □←'ALL MODELS INCLUDE CPU WITH MCM/APL;'°□←''
 [4] □←'FULL TYPEWRITER AND APL KEYBOARD; 32 CHARACTERS PLASMA DISPLAY;'
 [5] □←'OMNIPOINT GENERAL PURPOSE I/O INTERFACE AND PRINTER/PLOTTER DRIVER.'
 [6] □←'ALL EXCEPT MODEL 720 INCLUDES:'°□←''
 [7] □←' AVS CASSETTE OPERATING SYSTEM'
 [8] □←' AND POWER-FAILURE PROTECTION VIA BATTERY POWER SHUTDOWN.'
 [9] RM:→RM[17>ρL←18□]'MEMORY REQUIRED: 2048, 4096 OR 8192 BYTES'°VT 11
 [10] M←21M°→RM[10λ.=M←L[18]='842'
 [11] □←L°VT 11
 [12] □←BLK←70ρ' '
 [13] TP←TX[1], ' OR ',TX[2]°TX←1⊕(1≠M)+0 1
 [14] RT:→RT[124>ρL←24□]'NUMBER OF TAPE DRIVES: ',TP°VT 13
 [15] →RT[1~(T←L[24])∈TX
 [16] □←BLK°□←L°VT 13 N
 [17] □←' MODEL NO.: . '
 [18] □←'7', (⊕2×M),T°HT 24°VT 15
 [19] □←' PRICE PRICE' v
 [20] □←'FEDERAL SALES TAX FEDERAL SALES TAX'
 [21] □←' INCLUDED EXEMPT' v
 [22] P←+/M,⊕T
 [23] P←PIT[P],PET[P] N
 [24] PX←(2 3ρ12 2 0 23 2 0)⊕P
 [25] □←PX°PX[(5-P[1]>1E4),27]←'\$'
 [26] □←'CANADIAN DOLLARS, F.O.B. TORONTO, ONT.'°□←''

[27] □←'EXCLUDING PROVINCIAL TAX, -PRICES ARE SUBJECT TO CHANGE WITOUT NOTICE-'
[28] →1[ι~'N'€□'REPEAT:'°HT 65
[29] R □YO[□IO]0

∇

PET [numeric vector of length 6; element size 2 byte(s)]
4416 5484 6343 7855 7667 9179

PIT [numeric vector of length 6; element size 2 byte(s)]
4858 6032 6977 8641 8434 10097

ADS [79 by 23 array of type char; element size 1 byte(s)]
THE MCM/700 COMMUNICATIONS SUBSYSTEM

THE MCM/700 EQUIPPED WITH THE SCI-1200/1200A SERIAL COMMUNICATIONS
INTERFACE DRAMATICALLY INCREASES THE VARIETY AND CHOICE OF PERIPHERALS THAT
YOU CAN USE TO EXTEND THE RANGE OF PROBLEMS YOU SOLVE WITH YOUR MCM/700.

THE SCI-1200/1200A LETS YOU COMMUNICATE WITH ALL
EIA-RS232 OR CURRENT-LOOP COMPATIBLE DEVICES USING ANY
5 6 7 OR 8-LEVEL CODE SUCH AS . . .

ASCII ASCII/APL CORRESPONDENCE BAUDOT EBCDIC ETC.

THIS INCLUDES . . .

CRT TERMINALS ADDS DEC TELERAY LEAR-SIEGLER TEK CONRAC
TELETYPE TEKTRONIX AND MANY OTHERS
PRINTER TEMINALS IBM DEC ASL/2 TELETYPE CDI/TELETERM NCR
CENTRONICS AND MANY OTHERS
LARGE COMPUTERS IBM HONEYWELL BURROUGHS UNIVAC CONTROL DATA
NCR CII AMDAHL SIEMENS ETC

PLUS

PLOTTERS
PAPER-TAPE READERS AND PUNCHES
CARD READERS AND PUNCHES
SPECIAL DEVICES AND TERMINALS

FOR FURTHER INFORMATION ON HOW YOU CAN BEST USE THIS EXTENDED CAPABILITY
ON YOUR MCM/700 CONTACT YOUR LOCAL MCM REPRESENTATIVE.

∇VT A

[1] □BO A°□BO 11

∇

∇HT A

[1] □BO 16⊃0 10TA°□BO 16

∇

YY0 [18 by 1 array of type char; element size 8 byte(s)]
4100000025805E14 4F81060A000D8015 00000000000A0080 8000070000303132
3334353637383981 4142434445464748 494A4B4C4D4E4F50 5152535455565758
595A8181202E223C 813D813E81818181 812B2D81812A8181 81812181813F812F
5C815E8181818181 2C818181815F3B81 81815B5D28298181 273A818181818181
8181818181817F24 8181000000000000

∇R←CRT

```
[1]  °'O'  □YW 'YYO'°'O'  □YX 10°□OUT □YA 65 95°□IN  □YA 129 159°□NC'DM'
[2]  °'I'  □YW 'YYI'°'I'  □YX 10
[3]  □BO 12
[4]  □←'
[5]  □←'          ***** CONGRATULATIONS !!!!! *****'°□←4 1ρ' '
[6]  □←'          YOU HAVE SUCCESSFULLY LOADED THE DEVICE SUPPORT FOR THE'°□←''
[7]  □←DM°□←4 1ρ' '
[8]  R←'□XF10'
```

∇

DM [74 by 10 array of type char; element size 1 byte(s)]

1	1	1	1	1	1	1	1	1	1
2	4	8	16	32	64	128	256	512	1024
3	9	27	81	243	729	2187	6561	19683	59049
4	16	64	256	1024	4096	16384	65536	262144	1048576
5	25	125	625	3125	15625	78125	390625	1953125	9765625
6	36	216	1296	7776	46656	279936	1679616	10077696	60466176
7	49	343	2401	16807	117649	823543	5764801	40353607	282475249
8	64	512	4096	32768	262144	2097152	16777216	134217728	1073741824
9	81	729	6561	59049	531441	4782969	43046721	387420489	3486784401
10	100	1000	10000	100000	1000000	10000000	100000000	1000000000	10000000000

YYI [34 by 1 array of type char; element size 8 byte(s)]

```
A100000025905E14 4F810600000D8015 00000000000A0080 8000070000848484
8484848484848484 8484828484848484 8484838484848484 8484848484273D29
6C6A6C6C5B575838 344B352842000102 030405060708095C 512A2C2E406C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 55435645506C6C6C
6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C84303132
3334353637383981 4142434445464748 494A4B4C4D4E4F50 5152535455565758
595A8181202E223C 813D813E81818181 812B2D81812A8181 81812181813F812F
5C815E8181818181 2C818181815F3B81 81815B5D28298181 273A818181818181
8181818181817F24 8181000000000000
```

∇CLR

[1] □BO 12

∇

∇X DPY Y

```
[1]  □←Y°□←2 1ρ' '
[2]  →1×11≤X←X-1
```

∇

NAMES IN GROUP 65:

ROL ΔLD PIT PRI MVC MVP WID PAG TRA PLT

∇R←ROLL X;Y

```
[1]  @CHANGE NO. OF LINES PER INCH
[2]  →((1≤X)∧X≤48)/5°→(0=ρ,X)/5
```

```

[3] 'RANGE ERROR'
[4] →
[5] R←96÷(Y←Y0[I0]) [3+I0]
[6] Y [Y0[I0]0+Y[3+I0]←[1↑96÷X,R
▽

```

▽ΔLD X;G;I;PLΔ;PSΔ

```

[1] [←'TAPE: ',(X),(60ρ' '),⊕((2 2 2 0 0=NC'DAT')/'DAT''''')∘OU 1 16∘PSΔ-48
51∘PW←130
[2] [←'ACTIVE GROUPS ARE: ',G←XN10×I←1∘←''
[3] PLΔ←5∘←'GROUP NAMES'∘←''
[4] X←((1,(1+1↑ρX)ρ0)÷1 6ρ(4 0 0G[I]),' '),X←(([(x/ρX)÷80],80)ρ(X←XN
G[I]),20 4ρ' '
[5] →((I←I+1)≤ρG)/4∘←X∘RLΔ 1↑ρX
[6] RLΔ 1+(1↑PSΔ)-PLΔ
▽

```

▽R←PITCH X;Y

```

[1] @CHANGE NO. OF CHARACTERS PER INCH
[2] →((1≤X)∧X≤60)/5∘→(0=ρ,X)/5
[3] 'RANGE ERROR'
[4] →
[5] R←120÷(Y←Y0[I0]) [2+I0]
[6] Y[I0+2]←X+2|X←[120÷X∘→(0=ρ,X)/0
[7] Y [Y0[I0]0
▽

```

▽R←WIDTH X;Y

```

[1] @CHANGE PRINT WIDTH TO X IF X NOT EMPTY
[2] @RETURN PREVIOUS WIDTH
[3] →((30≤X)∧X≤132)/6∘→(0=ρX)/6
[4] 'RANGE ERROR'
[5] →0
[6] R←1↑Y←Y0[I0]1
[7] (X,(ρ,X)↓Y)Y0[I0]1
▽

```

▽ZΔ←PAGE MΔ

```

[1] @SET PAGEING TO PRINT 1↑MΔ LINES ON
[2] @A PAGE WHICH IS 1↑MΔ LINES LONG
[3] @RESULT IS THE PREVIOUS SETTING
[4] →(</MΔ)/7∘→(0=ρ,MΔ)/7
[5] 'RANGE ERROR'
[6] →
[7] ((φ-φMΔ),(ρ,MΔ)↓ZΔ←Y0[I0]6)Y0[I0]6
[8] ZΔ←φ+φ2↑ZΔ
▽

```

PLT [4 by 66 array of type char; element size 2 byte(s)]
F4EB 0668 2D06 4E84
F815 0600 8BF8 46C8

003C 0340 AC0B 46AD
0028 063C 2D1E 2026
210E 3F46 5300 2E21
3633 C753 453C 4248
5720 4621 2046 AD00
0688 2D1E 2026 210E
B446 5300 46E0 07B0
2B2E 00F5 3D3D 4657
0868 A120 1640 4659
2046 5708 1688 6859
2046 5920 4621 2044
6623 071A 1C13 181E
0F1C 1513 1820 0B16
130E 2719 1F1E 1A1F
1E27 0E0F 2013 0D0F
2E20 3614 C73C 6C60
2D20 0627 D046 AD00
2806 7B2D C22D C7B0
504E 20D0 46AD 0028
06E7 2DC2 247F 2DC7
464E 2015 C7D0 46AD
20C2 0257 0620 5507
3525 3525 3D46 8B20
3DC6 94F0 C59B E840
7620 C22C 08D0 A896
F006 009D E846 AD20
C657 C524 07B2 5507
C0C0 C0C0 C0C0 C0C0
C0C0 2E20 3600 C70A
0A0A 0A24 08AA D036
08C7 24FE 31EF F007
06E0 5544 BB0B 06E0
5544 BB0B 45C8 2403
2C01 44BD 20C0 C0C0
C0C0 C0C0 48C9 20C1
24E0 3CE0 2B44 AD20
06E0 5546 AD00 066A
2D44 C40B 45C8 2403
2C01 484E 20C1 24E0
3CE0 4821 2046 FF09
2E20 3614 D048 4020
3E59 0725 2E21 362C
C7B0 484B 2011 25FA
0746 AD00 066A 2D44
C40B 46AD 0006 722D
44C4 0B30 3132 3334
3536 3738 3946 6162
6364 6566 6768 696A
6B6C 6D6E 6F70 7172
7374 7576 7778 797A
484C 202E 4023 2425
5E26 2A28 2900 822D
5F3D 2B50 8444 534D
864F 5451 882F 3F8A
5955 424E 4549 2C52
8C8E 905B 3C5D 9294

3B27 3A22 4A96 4B3E
 4741 5743 5658 5A21
 989A 9C9E 3EB0 A028
 5429 5450 4F2E 4B2F
 5F3F 5F4F 4D4F 5F4F
 3F48 4D47 4D43 4A42
 4A2C 5F4C 2B4C 4B4E
 4AC3 12D8 4633 2724

NAMES IN GROUP 80:

SL	GUN	RD	RN	MOO	CRA	RL	HOR	ADD	HAN	WOR	GO
CLE	J3	N	C	MA	FAD	Q	F	G	L	M	HIT
FAD	CD	DA	HA	PLA	PAY	TOT	X3	STR	U	T	P
LN	ST	I	W	R	E	S	ALP				

VSL;F;T;Z;V;N;NEW;P;HIT;J;K;IX

```
[1] F←15 49 42 61 88 58 75 94 97 3 6 14 37 41 69 79 89 99
[2] T←9 12 17 22 36 45 47 64 65 37 16 32 56 85 87 98 91 77
[3] 'ENTER PLAYERS' NAMES 1 PER LINE' °I0←~°PT←0
[4] 'TO END THE LIST'
[5] 'DEPRESS RETURN ONLY'
[6] N←(1,ρN)ρN←°''
[7] NXT:→PL[ι0=ρNEW←°''
[8] →NXT°N←Nr(1,1↓ρN)ρNEW,((1↓ρN)-ρNEW)ρ' '°→FN[ι(ρNEW)>1↓ρN
[9] FN:→NXT°N←(N,((''ρρN),(ρNEW)-1↓ρN)ρ' ')(1,ρNEW)ρNEW
[10] PL:°RL←°°°←'INPUT RANDOM SEED 'MAX: 32767''
[11] 'PLAYERS SELECTED RANDOMLY'°P←(J←''ρρN)ρ0°K←3 2ρ9 8 7
[12] 'WHEN YOUR NAME IS SELECTED'
[13] 'KEY DIGIT 1 2 OR 3.'
[14] LP:IX←?J
[15] →LP[ιV≠3[1[ [V°→°LC[ι0=V←''ρz1↑°N[IX;],':':°PT←9
[16] 'THROWN: ' ;V←?((?3)°K)[V;]
[17] →WIN[ι99<V←P[IX]+V←+/V
[18] N[IX;];' HAS HIT AT: ' ;V°→TST[ι~V∈F
[19] 31ρ('ι↑'[1+F[HIT]<V←T[HIT←FιV]),' '
[20] TST:→STB[ιV∈P
[21] DONE:N[IX;];' IS AT: ' ;P[IX]←V
[22] '°°° ' ;P; ' °°°'°PT←5×ρP
[23] →LP°K←3[K-1°→LP[ι50≥]/P°→LP[ι1≠?5
[24] STB:N[IX;];' HAS STUMBLER ON: ' ;N[Z;]°PT←30°→DONE[ιIX=Z←PιV
[25] 'SORRY, ' ;N[Z;];' YOU ARE AT 0' .
[26] →DONE°P[Z]←0
[27] WIN:'CONGRATULATIONS ' ;N[IX;]°PT←30°→MIS[ι100≠V
[28] Z←'0123456789'°I0←°PT←0°P[IX]←100°°←'POSITIONS:'
[29] Z[1+(10TιρP)°.,0], ' ' ,N[PP;], ' ' ,Z[Q10 10 10TP[PP←ΨP]] ?
[30] →0
[31] MISS:'PAST 100 LAST TROW IGNORED'
[32] →DONE°V←P[IX]
```

▽

∇GUN ;A;M;S;TM;TR

```
[1] S←0 0◊RL←RL
[2] S[1]←1+S[1]◊PT←30
[3] 'EST 'D TARGET RANGE ';RD(.9×TR)+?.2×TR←4000+?8000;' YDS.'
[4] →0×ι'S'∧.=A←25ι'ENTER EST 'D GUN ELEVATION '
[5] S[2]←S[2]+1◊A←A
[6] M←(.9×|TM)+?.2×|TM←TR-TM+.002×RN×TM←12000×102×◊A÷180
[7] →(50≥|TM)/10
[8] 6ρ(6×TM>0)φ' OVER SHORT ';RD M;' YDS. TRY AGAIN.'
[9] →4
[10] 'GOOD SHOT!'◊PT←5
[11] 'YOU HAVE SUNK ';S[1];' TARGET';(1≠1↑S)/'S'◊PT←20
[12] 'IN ';S[2];' SHOT',((1≠1↓S)/'S'), '.'
[13] 'AVERAGE ';TM;' SHOT',((1≠TM÷/φS)/'S'), '/TARGET.'
[14] →2×ι'Y'∈-5↑'LIKE ANOTHER? '
[15] RL←RL
```

∇

∇T←RD X

```
[1] T←((X≤100),((X>100)∧X≤1000),X>1000)/10 50 100
[2] T←T×[(÷T)×X+.5×T
```

∇

∇T←RN

```
[1] T←.01×-612++/?12ρ101
```

∇

∇M00;B;C;G;NG;X;Y

```
[1] NG←x◊RL←RL
[2] →5[ι~NG◊PT←10
[3] 'NEW GAME'◊PT←10◊G←NG←0
[4] Y←'1234567890'[(10=1↑X)φX←3?10]
[5] →((∧/X∈'1234567890'),'S'v.=X←-3↑'ENTER GUESS: ')/7 15
[6] →5◊'3-DIGIT NUMBER PLEASE '
[7] →8+1∧.=+/X◊.=X
[8] →5◊'NO REPETITIONS PLEASE '
[9] C←(+/Y∈X)-B←Y+. =X
[10] B;' BULL';((B≠1)/'S');',';C;' COW';(C≠1)/'S'
[11] →2[ι~NG←3=B◊G←G+1
[12] 'GAME OVER'
[13] 'YOU USED ';G;' GUESSES'
[14] →2
[15] ◊PT←0◊RL←RL
```

∇

∇CRAPS;B;D;S

```
[1] ◊RL←32000||S←A21ι'WHAT ARE YOUR STAKES? '
[2] 'YOUR STAKE IS NOW $';S◊PT←15
[3] →18×ι0=B←|A22ι'PLACE YOUR BET PLEASE. '
[4] →16×ιB>S
[5] S←S-B
[6] →18×ιV/'OSQ'∈20ι'ROLL FOR YOUR POINT.'
```

```

[7] →12×1(D←+/□←?6 6)∈2 3 12
[8] →13×1D∈7 11
[9] 'YOUR POINT IS ';D
[10] →18×1V/'OQS'∈5↓□'ROLL.'
[11] →10◦→((D,7)=X←+/□←?6 6)/14,□PT←15
[12] →15◦□←'YOU HAVE CRAPS.'
[13] 'YOU HAVE A NATURAL.'
[14] →2◦S←S+2×B◦□←'YOU WIN.'
[15] →2◦→17×1S≤0◦□←'YOU LOSE.'
[16] →3◦□←'BET CAN'T EXCEED STAKE.'
[17] →□PT←0◦□←'GAME OVER. YOU ARE BROKE.'
[18] 'GAME OVER.'
[19] 'YOUR STAKE IS $';S
[20] □PT←0

```

▽

RL [numeric scalar: element size=2 byte(s)]
3367

▽HORSE;P;R;W

```

[1] 'THEY''RE AT THE POST.'◦□PT←2×ρP←5ρ0
[2] 5 1ρ15◦□PT←4
[3] 'THEY''RE OFF!!!!'◦□PT←8
[4] ((1↑P←30[P+?9 9 9 9]ρ' ');1
[5] (P[2]ρ' ');2
[6] (P[3]ρ' ');3
[7] (P[4]ρ' ');4
[8] (P[5]ρ' ');5
[9] →4×130>[/P
[10] W←,(P=30)/15
[11] R←-/2↑P←P[ΨP]
[12] P←((R=0)/'A NOSE'),((R>0)/('0123456789'[1+R]),' LENGTH'),((1<R)/'S'),' IS NO. '
[13] 'AND THE WINNER'◦□PT←10
[14] 'BY ',P;W[?ρW]
[15] □PT←0

```

▽

▽ADD;A

```

[1] LN←LN,ρA←,□' '
[2] ST←ST,ST[ρST]+ρA
[3] STR←STR,A

```

▽

▽HANG;F;U;T;P;I;W;R;E;S;M;L;G;Q;FΔΔ R

```

[1] INIT:→(((E←T←0)=R←ρW←WORD N←N+1),N=0)/DONE,LIST◦F←' '◦U←' _'
[2] F;'NEW MESSAGE '
[3] LIST:F;P←(,⊗Sρ(∼M),M←(W≠W[1])∧(W≠W[R])∧W∈ALPH)/,⊗(S←2,R)ρW,RρU
[4] L←L[1M-1],((ρL)[M←L1W[1])↓L←L[1M-0],((ρL)[M←L1W[R]) ↓ L←ALPH
[5] READ:→((I=0),(I=1),2=I←ρG←,□' ')/READ,LTR,SPEC
[6] FULL:→(R≠I)/LENE
[7] →(V/(M/G)≠(M←P≠U)/W)/TYPO
[8] →(((∧/W=G),T←T+1)[1])/WIN
[9] MISS:→(M,∼M←10=ρ□←F,'HANGMAN'[1E←E+1])/LOSE,READ
[10] LTR:→((∼G∈ALPH),∼G∈L)/LTE,USED
[11] →(((∼G∈W),T←T+1)[1])/(MISS,ρL←L[1M-1],(M←L1G)↓L)[1] |

```

```

[12] F;P←(,⊗SpM,~M←(G=W) vP≠U)/,⊗SpW,P
[13] →(M,~M←Λ/P≠U)/WIN,READ
[14] LENE:→READ,ρ□←F;'YOUR GUESS IS NOT THE SAME LENGHT AS THE MESSAGE'
[15] SPEC:→((Q='S'),(Q='M'),(Q='P'),'L'≠Q←G[2])/SCR,END,PAT,FULL ↘
[16] →READ,ρ□←F,'YOU HAVEN''T TRIED: ',L =
[17] SCR:→(E=0)/NONE N
[18] →READ,ρ□←F,'YOU HAVE ACCUMULATED: ', 'HANGMAN'[ιE]
[19] NONE:→READ,ρ□←F,'NO ERRORS.'
[20] LOSE:F;'YOU LOSE.'
[21] END:→INIT,ρ□←F,'THE MESSAGE WAS: ',W
[22] TYPO:→READ,ρ□←F,'YOU MUST HAVE MADEA TYPO ERROR.'
[23] LTE:→READ,ρ□←F;'THAT''S NOT A LETTER.'
[24] WIN:'YOU WIN IN ';T;' GUESS';' ES '[(T≠1)+ι1+2×T≠1]
[25] 'WITH ';E;' ERROR';'.S.'[(E≠1)+ι1+E≠1]
[26] →INIT
[27] PAT:→READ,ρ□←F,'THE PATTERN IS: ',P
[28] USED:→READ,ρ□←F,'','','G, ''ALREADY ', 'FAILWORK'[(ι4)+4×G∈W], 'ED.'
[29] DONE:'SORRY NO MORE MESSAGES.'

```

▽

▽W←WORD N

```

[1] →2×N<ρST,W←''
[2] W←STR[ST[N]+ιLN[N]] U

```

▽

▽GO

```

[1] N←N-1
[2] HANG

```

▽

▽CLEAR

```

[1] LN←STR←''
[2] N←0
[3] ST←,0

```

▽

▽J3 ;T

```

[1] 1 FΔ B,Y,S←T←ι0
[2] 'DEALER: ',DΔ M
[3] →0×ι0=ρT
[4] →(16<I←TOT M)/6
[5] →4×M←HIT M
[6] I←I×21≥I
[7] MΔ[2-K;] PAY T[1]×K←×I-T[2]
[8] →(0<ρT←2ιT)/7

```

▽

N [numeric scalar: element size=1 byte(s)]

C [3 by 13 array of type char; element size 1 byte(s)]

A
2
3
4
5
6
7
8
9
10
J
Q
K

MΔ [4 by 3 array of type char; element size 1 byte(s)]

LOSE
PUSH
WIN

FΔΔ [86 by 29 array of type char; element size 1 byte(s)]

∇HANG

INIT:→(((E←T←0)=R←ρW←WORD N←N+1),N=0)/DONE,LIST

F;'NEW MESSAGE '

LIST:F;P←(,∅Sp(∼M),M←(W≠W[1])∧(W≠W[R])∧W∈ALPH)/,∅(S←2,R)ρW,RρU

L←L[ιM-1],((ρL)[M←LιW[1])↓L←L[ιM-0],((ρL)[M←LιW[R])↓L←ALPH

READ:→((I=0),(I=1),2=I←ρG←,□'')/READ,LTR,SPEC

FULL:→(R≠I)/LENE

→(v/(M/G)≠(M←P≠U)/W)/TYPO

Δ

→(((W=G),T←T+1)[1])/WIN

MISS:→(M,∼M←10=ρ□←F,'HANGMAN'[ιE←E+1])/LOSE,READ

LTR:→((∼G∈ALPH),∼G∈L)/LTE,USED

→(((∼G∈W),T←T+1)[1])/MISS,ρL←L[ιM-1],(M←LιG)↓I)[1]

F;P←(,∅SpM,∼M←(G=W)∨P≠U)/,∅S W,P

→(M,∼M←∧/P≠U)↓/WIN,READ

LENE:→READ,ρ□←F;'YOUR GUESS IS NOT THE SAME LENGHT AS THE MESSAGE'

SPEC:→((Q='S'),(Q='M'),(Q='P'),'L'≠Q←G[2])/SCR,END,PAT,FULL

→READ,ρ□←F,'YOU HAVEN'T TRIED: ',L

SCR:→(E=0)/NONE

→READ,ρ□←F,'YOU HAVE ACCUMULATED: ', 'HANGMAN'[ιE]

NONE:→READ,ρ□←F,'NO ERRORS.'

LOSE:F;'YOU LOSE.'

END:→INIT,ρ□←F,'THE MESSAGE WAS: ',W

TYPO:→READ,ρ□←F,'YOU MUST HAVE MADEA TYPO ERROR.'

LTE:→READ,ρ□←F;'THAT'S NOT A LETTER.'

WIN:F;'YOU WIN IN ';T;'GUESS';' ES

'[(T≠1)+ι1+2×T≠1];'WITH';E;'ERR';'S'[(E≠1)+ι1+E≠1]

→INIT

PAT:→READ,ρ□←F,'THE PATTERN IS: ',P

USED:→READ,ρ□←F,'','','G, ''ALREADY ', 'FAILWORK'[(ι4)+4×G∈W], 'ED.'

DONE:'SORRY NO MORE MESSAGES.'

Q [scalar of type char: element size=1 byte(s)]

1

F [vector of type char of length 3; element size 1 byte(s)]

G [vector of type char of length 12; element size 1 byte(s)]
LONGITUDINAL

L [vector of type char of length 20; element size 1 byte(s)]
BCDFGHJKMPQRSTUVWXYZ

M [numeric vector of length 12; element size 1 byte(s)]

1 1 1 0 1 0 0 0 1 1 1 1

∇Z←HIT Y

[1] DΔ Z←Y,CD

∇

∇K FΔ Z;B;Y

[1] B←1↑Z

[2] →7 6[(1+0≠1↑Y←1↓Z)×1K=2]

[3] →6[121≠TOT Y

[4] 'WIN 'PAY 1.5×B

[5] →0°U←U,Y

[6] →7 11 9 14 6['SHDP'1J←1↑12↓□'S,H,D OR P? ']

[7] T←T,B,TOT Y

[8] →0°S←S,Y

[9] →6[12≠ρY

[10] B←B+B

[11] →6 7[('HD' 1J)×121≥TOT Y←HIT Y]

[12] 'LOSE' PAY B

[13] →0

[14] →6[1~(K=1)∧(2=ρY)∧=/Y

[15] 'YOU: ',DΔ Y←Z,CD

[16] 2 FΔ B,Y

[17] 'YOU: ',DΔ Y←Z,CD

[18] 2 FΔ B,Y

∇

∇C←CD

[1] →4[10<ρD

[2] □PT←0°□←'SHUFFLE'°□PT←7

[3] U←0ρD←U[(ρU)?ρU]

[4] C←1↑D

[5] D←1↓D

∇

∇Y←DΔ M

[1] Y←,C[1+M;]

∇

```

∇HA
[1] M←CD
[2] 'DEALER SHOWS: ',DΔ M
[3] M←M,CD
[4] 'YOU: ',DΔ Y←CD,CD
∇

```

```

∇PLAY;S;B;D;DB;J;K;M;SI;U;Y;Z
[1] U←13|ι52°D←ιDB←0°RL←RL
[2] B←1000|0|ιZ°→16[ι'S'∈Z←20ι]'NEW HAND PLACE BET '
[3] HΔ
[4] →6[ι0≠1↑M
[5] →10 10 6['IY'ι11ι]'INSURANCE? '
[6] →14[ι21≠TOT M
[7] 'DEALER: ',DΔ M
[8] J3 7D-×K←21≠TOT Y // line corrupted
[15] →2°U←U,S,M
[16] RL←RL
∇

```

```

∇A PAY B
[1] A,': YOU''RE ',,X3[1+0[×DB;];|DB←DB+B
∇

```

```

∇T←TOT X;I
[1] X←1+X
[2] →0×ι21≥T←+/11 2 3 4 5 6 7 8 9 10 10 10 10 1 [X]
[3] →0×ι(ρX)<I←Xι1
[4] →2°X[I]←X[I]+13
∇

```

X3 [6 by 2 array of type char; element size 1 byte(s)]
UP
DOWN

STR [vector of type char of length 8; element size 1 byte(s)]
THISTHAT

U [vector of type char of length 1; element size 1 byte(s)]
—

T [numeric scalar: element size=1 byte(s)]
87

P [vector of type char of length 12; element size 1 byte(s)]
LON_I__INAL

LN [numeric vector of length 2; element size 1 byte(s)]
4 4

ST [numeric vector of length 3; element size 1 byte(s)]
0 4 8

I [numeric scalar: element size=1 byte(s)]
87

W [vector of type char of length 0; element size 1 byte(s)]

R [numeric vector of length 1; element size 1 byte(s)]
0

E [numeric scalar: element size=1 byte(s)]
87

S [vector of type char of length 8; element size 1 byte(s)]
STACEY

ALP [vector of type char of length 26; element size 1 byte(s)]
ABCDEFGHIJKLMNOPQRSTUVWXYZ

NAMES IN GROUP 90:
CIS ISD

CIS [120 by 14 array of type char; element size 1 byte(s)]

YEAR-TO-DATE				THIS MONTH			
ACTUAL	PLAN	VARIANCE	LAST-YEAR	ACTUAL	PLAN	VARIANCE	LAST-YEAR
SALES AND SERVICE REVENUES				118769.0	110000.0	8.0	92384.0
923296.0	960000.0	3.8	784720.0				
COSTS AND EXPENSES							
COST OF SALES				74231.0	69300.0	7.1	58965.0
572508.0	600200.0	4.6	492783.0				
SELLING, GENERAL AND ADMINISTRATIVE				19762.0	18700.0	5.7	15847.0
156961.0	163200.0	3.8	133669.0				
DEPRECIATION				2600.0	2700.0	3.7	2290.0
23182.0	24000.0	3.4	19680.0				
INTEREST				3271.0	3000.0	9.0	2738.0
25693.0	26000.0	1.2	21326.0				
				99864.0	93700.0	6.6	79840.0
778344.0	813400.0	4.3	667458.0				
EARNINGS FROM OPERATIONS				18905.0	16300.0	16.0	12544.0
144952.0	146600.0	1.1	117262.0				
NON-OPERATING INCOME				10000.0	0.0	0.0	0.0
10000.0	0.0	0.0	0.0				
NET EARNINGS BEFORE INCOME TAXES				28905.0	0.0	0.0	0.0
154952.0	0.0	0.0	0.0				
PROVISION FOR INCOME TAXES				12000.0	0.0	0.0	0.0
70000.0	0.0	0.0	0.0				
NET EARNINGS				16905.0	0.0	0.0	0.0
84952.0	0.0	0.0	0.0				

```

ISD [8 by 11 numeric array; element size 8 byte(s)]
4E00000000001CFF1 4E00000000001ADB0 4E00000000000008 4E0000000000168E0
4E0000000000E16A0 4E0000000000EA600 C13CCCCCCCCCCCD0 4E0000000000BF950
4E0000000000121F7 4E000000000010EB4 4171999999999999C 4E0000000000E655
4E00000000008BC5C 4E000000000092888 C1499999999999999C 4E0000000000784EF
4E00000000004D32 4E0000000000490C 415B3333333333334 4E00000000003DE7
4E000000000026521 4E000000000027D80 C13CCCCCCCCCCCD0 4E000000000020A25
4E00000000000A28 4E00000000000A8C C13B3333333333334 4E000000000008F2
4E000000000005A8E 4E000000000005DC0 C13666666666666668 4E000000000004CE0
4E000000000000CC7 4E000000000000BB8 4E000000000000009 4E000000000000AB2
4E00000000000645D 4E000000000006590 C1133333333333333 4E00000000000534E
4E000000000018618 4E000000000016E04 4169999999999999C 4E0000000000137E0
4E0000000000BE068 4E0000000000C6958 C144CCCCCCCCCCCD0 4E0000000000A2F42
4E0000000000049D9 4E000000000003FAC 4E00000000000010 4E000000000003100
4E000000000023638 4E000000000023CA8 C1119999999999999A 4E00000000001CA0E
4E000000000002710 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000002710 4E000000000000000 4E000000000000000 4E000000000000000
4E0000000000070E9 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000025D48 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000002EE0 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000011170 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000004209 4E000000000000000 4E000000000000000 4E000000000000000
4E000000000014BD8 4E000000000000000 4E000000000000000 4E000000000000000

```

NAMES IN GROUP 100:

GPA REA SRE WRI SWR RUN XFE GET PUT

GPA [vector of type char of length 21; element size 1 byte(s)]
DATA TRANSFER PACKAGE

▽READ X;I;N;M;L;R;IO;T

- [1] @READ DATA OR FUNCTION X FROM ANOTHER SYSTEM
- [2] M←x/N←1↓N←(0>T←1↑N←XFER'SREAD ''',X, ''')/0◦'NO VALUE?'
- [3] I←I←0×IO←I←IO
- [4] →DNA×10=x/ρR←Np' '◦'EXIT IR R EMPTY'
- [5] LPA:L←L,XFERI←ρL←(v/(ρL)=M,1↑N)/NXΔ◦L←XFERI
- [6] NXΔ:→DNA◦R←NpL←(M≠ρL)/NCA
- [7] NCA:→((I←I+ρL)<M)/LPA◦R←R PUT I
- [8] DNA:→XTA◦X, '←R'◦→(T=20 3)/NAA,FNA◦I←'0'
- [9] FNA:→XTA◦X, '←FX R'
- [10] NAA:T←((1↓ρR);R←R GET I←J←0)ρ0
- [11] ELA:T←T PUT J◦L←R GET I
- [12] →((x/ρR)>I←I+1↑ρR◦J←J+1↑ρT)/ELA
- [13] XTA:I←IO

▽

▽SREAD X;I;L;IO;R;T

- [1] @SLAVE READ TO TRANSFER DATA OR FUNCTION X
- [2] →(0 2 3=T←NC X)/NVA,DAΔ,FNA
- [3] →0◦I←'2'◦'INVALID TYPE'
- [4] NVA:→0◦I←'1'◦'NO VALUE'


```

[5] DAD:→OKΔ◦R←R◦→(2=T←T+18×0\0ρR←X)/OKΔ
[6] FND:R←X'CR''',X, ''''
[7] OKΔ:I←XFER⊖T,ρR
[8] I←I0←0×I0←I0
[9] R←,R◦→(255<x/ρR)/LPA◦→(0=x/ρR)/0
[10] LPA:L←R GET I
[11] EDA:I←XFER(128|ρL)↑L
[12] →(0≠ρL←(128|ρL)↓L)/EDA
[13] I0←I0◦→(0<I)/LPA

```

▽

▽WRITE X;I;L;I0;R;T

```

[1] @WRITE DATA OR FUNCTION X TO ANOTHER SYSTEM
[2] →(0 2 3=T←NC X)/NVA,DAΔ,FND
[3] →0◦←'2'◦'INVALID TYPE'
[4] NVA:→0◦←'1'◦'NO VALUE'
[5] DAD:→OKΔ◦R←R◦→(2=T←T+18×0\0ρR←X)/OKΔ
[6] FND:R←X'CR''',X, ''''
[7] OKΔ:I←XFER⊖T,ρR
[8] I←I0←0×I0←I0
[9] R←,R◦→(255<x/ρR)/LPA◦→(0=x/ρR)/0
[10] LPA:L←R GET I
[11] EDA:I←XFER(128|ρL)↑L
[12] →(0≠ρL←(128|ρL)↓L)/EDA
[13] I0←I0◦→(0<I)/LPA

```

▽

▽SWRI X;I;N;M;L;R;I0;T

```

[1] @READ DATA OR FUNCTION X FROM ANOTHER SYSTEM
[2] M←x/N←1↓N◦→(0>T←1↑N←XFER'SREAD''',X, '''' )/0◦'NO VALUE?'
[3] I←I0←0×I0←I0
[4] →DNA×10=x/ρR←Np' '◦'EXIT IR R EMPTY'
[5] LPA:L←L,XFER⊖I←ρL◦→(v/(ρL)=M,1↑N)/NXΔ◦L←XFER⊖I
[6] NXΔ:→DNA◦R←NpL◦→(M≠ρL)/NCA
[7] NCA:→((I←I+ρL)<M)/LPA◦R←R PUT I
[8] DNA:→XTΔ◦X,'R'◦→(T=20 3)/NAΔ,FND◦←'0'
[9] FND:→XTΔ◦X,'←FX R'
[10] NAD:T←((1↓ρR);R⊖R GET I←J←0)ρ0
[11] ELΔ:T←T PUT J◦L←R GET I
[12] →((x/ρR)>I←I+1↑ρR◦J←J+1↑ρT)/ELΔ
[13] XTΔ:I0←I0

```

▽

▽RUN

```

[1] @EXECUTE DATA FROM EIA
[2] →2◦XFER''

```

▽

▽R←XFER X

```

[1] ◦IN 1↑OU YA 1 31
[2] R←''◦←X
[3] ◦'IN CASE ATTENTION'

```

▽

```

∇Z←R GET I;E
[1]  @GET FROM R(ANY SHAPE) THE ROW STARTING AT ELEMENT I(∅I0←0)
[2]  Z←∅'R', (0≠ρ4∓E)/E∅E[( ' '=E)/∓ρE←' [, (∅-1∓(ρR)TI), ' ; ]' ]←' ; '
∇

```

```

∇Z←R PUT I;E
[1]  @PUT INTO R(ANY SHAPE) THE ROW STARTING AT ELEMENT I(∅I0←0) FROM L
[2]  Z←R∅∅'R', ((0≠ρ4∓E)/E∅E[( ' '=E)/∓ρE←' [, (∅-1∓(ρR)TI), ' ; ]' ]←' ; '), '←L'
∇

```

NAMES IN GROUP 101:

```

ELE EL0 EL1 EL2 EL3 EL4 EL5 ELI EL6 REL SIG MEC
FIL PLT

```

∇ELECTRONIQUE

```

[1] EL1
[2] EL2
[3] EL3
[4] EL4
[5] EL5
∇

```

∇EL0

```

[1] SIG ∅ZZ[ '.' ] PLT
[2] ∅←'25,27 RUE VERGNIAUD'∅∅←2 1ρ' '
[3] ∅←' 75013 PARIS'
[4] ∅←5 1ρ' '
∇

```

∇EL1

```

[1] 'TRANSISTOR'
[2] ∅∅0∓6∅'NOM←' ' '
[3] ∅∅0∓5∅'VCC←'
[4] ∅∅2∓6∅'BETA←'
[5] ∅∅22∓26∅'CAPA PARASITE COLL/MASSE← E-12'
[6] ∅∅18∓22∅'BANDE PASSANTE A 3DB← E6' A
[7] ∅∅0∓5∅'IC0← E-6'
[8] ∅∅0∓5∅'VBE←'
[9] 'SIGNAUX'
[10] ∅∅1∓5∅'ΔVE← E-3'
[11] ∅∅1∓5∅'ΔVS←'
[12] ∅∅23∓26∅'COEFF. DERIVE EN TEMP: S←3'
[13] 'DISTORSION'
[14] ∅∅11∓14∅'INFERIEURE A← E-2'
[15] ∅∅12∓16∅'A LA FREQUENCE←'
∇

```

VEL2

```

[1] RS←SE×DB×02
[2] R←RS÷GV←VS÷VE
[3] VR←2+VS÷2
[4] IR←1.5×VS÷RS
[5] RE←(VCC-VR+IR×RS+R)÷IR
[6] RB←RE×S-1
[7] R1←VCC×RB÷(IR×R+RE)+VBE+RB×IR÷TA
[8] R2←RB×R1÷R1-RB
[9] C1←K÷RB×K←4×CE×A
[10] C2←K÷R
[11] MM←10 4 3

```

▽

VEL3

```

[1] □←'TRANSISTOR: ',NOM
[2] □←'BETA: ',TA
[3] □←'TENSION EMETTEUR/BASE VBE: ',VBE
[4] □←'TENSION D'ALIMENTATION VCC: ',VCC
[5] □←'COURANT IC0: ',IC0
[6] □←'CAPACITE PARASITE COLLECTEUR: ',SE
[7] □←'BANDE PASSANTE A 3 DB: ',DB
[8] □←'SIGNAL D'ENTREE ΔVE: ',VE
[9] □←'SIGNAL DE SORTIE ΔVS: ',VS
[10] □←'COEFF DE DERIVE EN TEMPERATURE: ',S
[11] □←'DISTORSION INFERIEURE A ',(A),' A ', ' HZ'

```

▽

VEL4

```

[1] □←'RESULTATS: '◦□←2 1ρ' '
[2] □←'R1= ',MMR1
[3] □←'R2= ',MMR2
[4] □←'RS= ',MMRS
[5] □←'R = ',MMR
[6] □←'RE= ',MMRE
[7] □←'C1= ',MMC1
[8] □←'C2= ',MMC2
[9] □←'AMPLIFICATION EN TENSION GV: ',4 1 0GV
[10] □←'TENSION VCE (POINT REPOS): ',6 0 3VR
[11] □←'COURANT IC (POINT REPOS): ',7 3 3IR
[12] □←3 1ρ' '

```

▽

VEL5

```

[1] □←(21ρ' '),VCC◦PP←3
[2] □←' ',(R1),(9ρ' '),RS◦□←' '
[3] □←2 1ρ' '
[4] □←(15ρ' '),NOM◦□←' '
[5] □←' ',C1
[6] □←' ',(R2),(9ρ' '),R◦□←2 1ρ' '
[7] □←(11ρ' '),RE,' ',C2◦□←2 1ρ' '
[8] ◦□OU HYT,64◦□BO 84◦□←' '
[9] MEC □ZZ['.'] PLT

```

[10] FIL □ZZ['.'] PLT
[11] □PP←5◦□OU HYT,241◦□←15 1ρ' ' ▽

▽ELICTRONIQUE

[1] EL0
[2] EL6 ▽

▽EL6

[1] □←15 1ρ' '◦I←0
[2] ◦13↓17□'NOMBRE D''ETAGES←'
[3] →(ES=0)/9
[4] MEC □ZZ['.'] PLT
[5] FIL □ZZ['.'] PLT
[6] →(ES=I←I+1)/9
[7] REL □ZZ['.'] PLT
[8] →4
[9] □←7 1ρ' '◦□OU HYT,241 ▽

REL [2 by 78 numeric array; element size 2 byte(s)]

4 240
8 240
12 240
16 240
20 240
24 240
28 240
32 240
36 240
40 240
44 240
48 240
52 240
56 240
60 240
64 240
68 240
72 240
76 240
80 240
84 240
88 240
92 240
96 240
100 240
104 240
108 240
112 240
116 240
120 240
124 240
128 240

132 240
136 240
140 240
144 240
148 240
152 240
156 240
160 240
164 240
168 240
172 240
176 240
4 184
8 184
12 184
16 184
20 184
24 184
28 184
32 184
36 184
40 184
44 184
48 184
52 184
56 184
60 184
64 180
68 176
72 172
76 168
80 164
84 160
88 156
92 152
96 152
100 152
104 152
108 152
112 152
116 152
120 152
124 152
128 152
132 152
136 0

SIG [2 by 218 numeric array; element size 2 byte(s)]

0 36
4 36
8 36
12 36
16 36
0 32
4 32

8 32
12 32
16 32
4 28
8 28
12 28
16 28
20 28
8 24
12 24
16 24
20 24
12 20
16 20
20 20
24 20
16 16
20 16
24 16
28 16
20 12
24 12
28 12
32 12
24 8
28 8
32 8
36 8
28 4
32 4
36 4
40 4
44 4
48 4
52 4
56 4
60 4
64 4
36 0
40 0
44 0
48 0
52 0
56 0
68 8
72 12
76 16
80 20
84 24
88 28
92 32
96 36
100 40
104 44
108 48
112 52

116 56
120 60
132 68
136 68
140 68
144 68
148 68
152 68
124 64
128 64
132 64
136 64
140 64
144 64
148 64
152 64
156 64
160 64
152 60
156 60
160 60
164 60
156 56
160 56
164 56
168 56
160 52
164 52
168 52
172 52
164 48
168 48
172 48
176 48
168 44
172 44
176 44
180 44
168 40
172 40
176 40
180 40
184 40
172 36
176 36
180 36
184 36
188 36
172 32
176 32
180 32
184 32
188 32
32 68
28 64
24 60

24 56
24 52
28 48
32 44
36 40
40 36
40 32
36 28
32 28
28 32
56 68
56 64
56 60
56 56
56 52
56 48
56 44
56 40
56 36
56 32
56 28
44 68
44 64
44 60
48 56
52 52
76 68
72 64
68 60
68 56
68 52
72 48
76 44
80 40
84 36
84 32
80 28
76 28
72 32
108 40
108 36
108 32
108 28
108 24
108 20
108 16
108 12
108 8
108 4
108 0
112 36
116 40
120 40
124 36
124 32
124 28

124 24
124 20
124 16
124 12
124 8
124 4
124 0
128 36
132 40
136 40
140 36
140 32
140 28
140 24
140 20
140 16
140 12
140 8
140 4
140 0
152 36
152 32
152 28
152 24
152 20
152 16
152 12
152 8
152 4
156 0
160 0
164 4
164 8
164 12
164 16
164 20
164 24
164 28
164 32
164 36
160 40
156 40
0 0

MEC [2 by 222 numeric array; element size 2 byte(s)]

24 0
32 0
40 0
28 4
36 4
44 4
32 8
36 8
40 8
44 8

48 8
32 72
36 72
40 72
44 72
48 72
48 76
48 80
48 84
48 88
48 92
48 96
48 100
48 104
48 108
48 112
44 112
40 112
36 112
32 112
32 108
32 104
32 100
32 96
32 92
32 88
32 84
32 80
32 76
16 144
16 148
16 152
16 156
16 160
24 160
24 156
24 152
24 148
24 144
32 192
36 192
40 192
44 192
48 192
48 196
48 200
48 204
48 208
48 212
48 216
48 220
48 224
48 228
48 232
44 232
40 232

36 232
32 232
32 228
32 224
32 220
32 216
32 212
32 208
32 204
32 200
32 196
104 192
108 192
112 192
116 192
120 192
120 196
120 200
120 204
120 208
120 212
120 216
120 220
120 224
120 228
120 232
116 232
112 232
108 232
104 232
104 228
104 224
104 220
104 216
104 212
104 208
104 204
104 200
104 196
72 136
72 140
72 144
72 148
72 152
72 156
72 160
72 164
72 168
76 168
76 164
76 160
76 156
76 152
76 148
76 144
76 140

76 136
80 160
84 160
88 160
88 144
84 144
80 144
88 152
84 148
84 140
88 136
104 72
108 72
112 72
116 72
120 72
120 76
120 80
120 84
120 88
120 92
120 96
120 100
120 104
120 108
120 112
116 112
112 112
108 112
104 112
104 108
104 104
104 100
104 96
104 92
104 88
104 84
104 80
104 76
104 16
108 16
112 16
116 16
120 16
120 20
120 24
120 28
120 32
120 36
120 40
120 44
120 48
120 52
120 56
116 56
112 56

108 56
104 56
104 52
104 48
104 44
104 40
104 36
104 32
104 28
104 24
104 20
96 0
104 0
112 0
100 4
108 4
116 4
104 8
108 8
112 8
116 8
120 8
136 32
140 32
144 32
148 32
152 32
152 40
148 40
144 40
140 40
136 40
128 0
136 0
144 0
132 4
140 4
148 4
136 8
140 8
144 8
148 8
152 8
0 0

FIL [2 by 126 numeric array; element size 2 byte(s)]

152 240
148 240
144 240
140 240
136 240
132 240
128 240
124 240
120 240

116 240
112 240
112 236
108 240
104 240
100 240
96 240
92 240
88 240
84 240
80 240
76 240
72 240
68 240
64 240
60 240
56 240
52 240
48 240
44 240
40 240
40 236
40 188
40 184
40 180
40 176
40 172
40 168
40 164
40 160
40 156
40 152
40 148
40 144
40 140
40 136
40 132
40 128
40 124
40 120
40 116
40 68
40 64
40 60
40 56
40 52
40 48
40 44
40 40
40 36
40 32
40 28
40 24
40 20
40 16
40 12

116 184
120 184
124 184
128 184
132 184
136 184
140 184
144 184
148 184
152 184
112 188
112 184
108 180
104 176
100 172
96 168
92 164
0 152
4 152
8 152
12 152
28 152
32 152
36 152
44 152
48 152
52 152
56 152
60 152
64 152
68 152
92 140
96 136
100 132
104 128
108 124
112 120
112 116
112 68
112 64
112 60
116 64
120 64
124 64
128 64
132 64
136 64
140 64
144 64
144 60
144 56
144 52
144 48
144 44
144 28
144 24

144 20
144 16
144 12
112 12
152 0

PLT [4 by 65 array of type char; element size 2 byte(s)]

F4EB 0668 2D06 4E84
F815 0600 8BF8 46C8
003C 0340 AC0B 46AD
0028 0638 2D1E 2026
210E 3F46 5300 2E21
3633 C753 453C 4248
5720 4621 2046 AD00
0688 2D1E 2026 210E
B046 5300 46E0 07B0
2B2E 00F5 3D3D 4657
0868 9D20 1640 4659
2046 5708 1688 6859
2046 5920 4621 2044
EE2C 071A 1C13 181E
0F1C 1513 1820 0B16
130E 2719 1F1E 1A1F
1E27 0E0F 2013 0D0F
2E20 3614 C73C 6C60
2D20 0627 D046 AD00
2806 772D C22D C7B0
504E 20D0 46AD 0028
06E3 2DC2 247F 2DC7
464E 2015 C7D0 46A9
20C2 0257 0620 5507
3525 3525 3D46 8B20
3DC6 94F0 C59B E840
7620 C22C 08D0 A896
F006 009D E846 A920
C657 C524 07B2 5507
C0C0 C0C0 C0C0 C0C0
C0C0 2E20 3600 C7B0
70A3 2036 08C7 24FE
31EF F007 06E0 5544
BB0B 06E0 5544 BB0B
45C8 2403 2C01 44B9
20C0 C0C0 C0C0 C0C0
48C5 20C1 24E0 3CE0
2B44 A920 06E0 5546
AD00 066A 2D44 C40B
45C8 2403 2C01 484E
20C1 24E0 3CE0 4821
2046 FF09 2E20 3614
D048 4020 3E59 0725
2E21 362C C7B0 484B
2011 25FA 0746 AD00
066A 2D44 C40B 46AD
0006 722D 44C4 0B30
3132 3334 3536 3738

3946 6162 6364 6566
6768 696A 6B6C 6D6E
6F70 7172 7374 7576
7778 797A 484C 202E
4023 2425 5E26 2A28
2900 822D 5F3D 2B50
8444 534D 864F 5451
882F 3F8A 5955 424E
4549 2C52 8C8E 905B
3C5D 9294 3B27 3A22
4A96 4B3E 4741 5743
5658 5A21 989A 9C9E
3EB0 A028 5429 5450
4F2E 4B2F 5F3F 5F4F
4D4F 5F4F 3F48 4D47
4D43 4A42 4A2C 5F4C
2B4C 4B4E 4A4B 4E4A