

NEHÉZIPARI MŰSZAKI EGYETEM
GÉPÉSZMÉRNÖKI KAR

HOSSZBORDÁS NÉGYZETES
SZEKRÉNYSZELVÉNYŰ KÖZ-
PONTOSAN NYOMOTT RUDAK
MÉRETEZÉSE SZELVÉNYTE-
RÜLET-MINIMUMRA

MINIMUM CROSS-SECTIONAL
AREA DESIGN OF CENTRALLY
COMPRESSED STRUTS OF
SQUARE BOX SECTION WITH
LONGITUDINAL STIFFENERS

FELHASZNÁLÓI LEÍRÁS
USERS' MANUAL
AMT-PR/20

KÉSZÜLT AZ OKKFT G/6-V. OKTATÁSI ALPROGRAM KAPCSÁN
A SZÁLLÍTÓBERENDEZÉSEK TANSZÉKÉN

MISKOLC, 1989

HOSSZBORDÁS NÉGYZETES SZEKRÉNYSZELVÉNYŰ
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SZELVÉNYTERÜLET-MINIMUMRA

MINIMUM CROSS-SECTIONAL AREA DESIGN OF
CENTRALLY COMPRESSED STRUTS OF SQUARE BOX
SECTION WITH LONGITUDINAL STIFFENERS

Oktatási segédlet a
FÉMSZERKEZETEK, HEGESZTETT SZERKEZETEK
c. tantárgyakhoz

Educational aid for the courses
METAL STRUCTURES, WELDED STRUCTURES

Irta

Written by

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1. PROGRAMISMERTETÉS

Négy program kerül ismertetésre:

TIH 37, TIH 52, TIB 37, TIB 52

A programok célja:

A különböző acélszerkezetekben alkalmazott hosszbordás vagy borda nélküli négyzetes szekrény-szelvényü, nyomott rudelemek optimális méretezése minimális szelvényterületre.

Felhasználási területeik:

a/ műszaki egyetemek és főiskolák fémszerkezetekkel, hegesztett szerkezetekkel kapcsolatos tantárgyaiban;

b/ ipari tervezési és ellenőrzési feladatokban.

Terhelés: centrikus nyomás

A megoldáshoz a programok az AMT OS/33 oktatási segédletben ismertetett képleteket használja.

Az egycélfüggvényes optimáláshoz a programok a Hillclimb algoritmust használják.

2. A PROGRAMOK LEÍRÁSA

A programok azonosítói:

Bordázatlan, 37-es acélanyagu szelvényekre

TIH 37

Bordázatlan, 52-es acélanyagu szelvényekre

TIH 52

Hosszbordás, 37-es acélanyagu szelvényekre

TIB 37

1. MAIN FEATURES OF THE PROGRAMS

The following four programs are considered:

The aim of the programs:

The optimum design of longitudinally stiffened or unstiffened struts of square box section under compression for minimum cross-sectional area, which are applied in various steel structures.

Fields of application:

a/ in the courses of metal structures or welded structures in technical universities or highschools;

b/ in design or verification problems in industry.

Loading: central compression

For the solution the computer programs use the formulæ given in the educational aid AMT OS/33.

The programs use the Hillclimb algorithm for the single criterion optimization.

2. DESCRIPTION OF THE PROGRAMS

Names of the programs:

For unstiffened sections made of steel Fe 360

For unstiffened sections made of steel Fe 510

For longitudinally stiffened sections made of steel Fe 360

Hosszbordás, 52-es acélananyagú szelvényekre

For longitudinally stiffened sections made of steel Fe 510

TIB 52.

A programok készítője:

Author of the programs:

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Címe:

Address:

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H-3515 Miskolc Egyetemváros

Techn.Univ., Dept of Materials
Handling Equipment, H-3515 Miskolc

Programnyelv:

Program language:

Microsoft Quick BASIC Ver. H.5.

Hardver:

Hardware:

IBM PC/AT or other compatible computer

A bevizsgálás időpontja:

Date of test:

1989, Dec. 15.

3. A PROGRAMOK KEZELÉSE

3. HOW TO USE THE PROGRAMS

A számítás a szelvénynek és anyagminőségnek megfelelő program kiválasztásával kezdődik.

Choose the necessary program for the selected type of section and steel grade and start the program.

A számítás elején lehetőség van új adatmező létrehozására vagy egy korábbi futtatáskor létrehozott adatmező felhasználására.

At the beginning you can make a new data file, or use the data file from a previous run.

A file soros hozzáférésű.

Data files are sequential ones.

Új adatmező létrehozásakor az adatbekérés INPUT utasításokkal történik.

For establishing a new data file the programs use INPUT statements.

A program alkalmas szelvényellenőrzésre vagy/és szelvényoptimalásra. Ellenőrzéskor a feltételeket sorban kiírja és feltünteti, hogy a szelvény megfelel-e vagy sem.

Programs are suitable for optimization or/and verification. In verification the programs show the constraints and state whether the constraint is fulfilled or violated.

Optimaláskor, ha valamely feltétel nem teljesül, a kezdőpont megváltoztatható.

In the optimization you can change the starting values if any constraint is violated.

Optimáláskor három fő paraméter megadására van lehetőség:

In the optimization you can choose the values of the following three main parameters:

- a konvergencia-kritérium értéke javasolt érték

- convergence parameter, proposed value is

$$10^{-6} \quad - \quad 10^{-7}$$

a konvergencia-kritérium

the convergence criterion is

$$F_{i+1} - F_i < 10^{-7} F_i$$

- az iterációk max. száma, javasolt

- max. number of iterations, it is proposed to take

15 - 20;

- kezdő lépéstáv, javasolt a kezdő érték tizedrésze.

- initial step length, it is proposed to take the one-tenth of the starting value.

Üres érték beadása esetén /enter/ az aláhuzott értékek szerepelnek a programban, egyébként a beadott értékekkel számol.

If the input is a blank value, using the enter button, the underlined values are valid during the computation.

Minden lépésnél kiírja a lépésszámot, a keresztmetszet-területet mm²-ben és a változás nagyságát.

In every stage the programs show the stage number, the cross-sectional area in mm², and the value of progress.

A program a konvergencia-kritérium vagy az iteráció-szám maximuma miatt áll meg.

The programs stop because of the convergence criterion or the max. iteration number.

A számítás kerekítetlen méreteket eredményez. Lehetőség van itt a számítás befejezésére, vagy diszkrét kerek értékek megkeresésére. Ekkor két diszkrét értéket kell megadni, amelyek alulról ill. felülről határolják a kerekítetlen értékeket. A program mindaddig új diszkrét értékeket kér, amíg az előbb említett feltétel nem teljesül.

The programs give unrounded dimensions. It is possible to finish the computation or to find rounded discrete values of variables. For the discretization two discrete values should be given as a lower and an upper limit of the unrounded variable. Programs need new discrete values until the previous relation between the discrete values is satisfied.

A számítás eredményeit a program LPRINT utasításokkal a nyomtatóra továbbítja.

Using LPRINT statements, the results can be sent to the printer.

4. JELÖLÉSJEGYZÉK

lemezszélesség
lemezvastagság
bordamagasság
bordavastagság
rudhossz (mm)
nyomóerő (N)
kihajlási tényező
horpadási tényező
a kihajlás és horpadás közötti
kölsönhatás tényezője

redukált lemezkarcsuság
a rud karcsusági tényezője
a változó aktuális értéke
alsó határérték egy feltétel-
ben
felső határérték egy felté-
telben
iteráció-szám
konvergencia-kritérium
az iteráció-szám határértéke
kezdő lépéstáv
a változók száma
a feltételek száma
a célfüggvény értéke

4. NOTATION

X (1) plate width
X (2) plate thickness
X (3) stiffener height
X (4) stiffener thickness
LL strut length (mm)
FF compressive force (N)
KK overall buckling factor
KKP local buckling factor
KU factor for the interaction
between overall and local
buckling

RR reduced plate slenderness
LAF slenderness of the strut
XC actual value of a variable
LC lower value in a constraint
UC upper value in a constraint

I number of iterations
DE convergence criterion
LX maximal number of iterations
LS initial step length
P number of variables
L number of constraints
F value of the objective
function

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SCREEN 1, 0: COLOR 13, 4, 10: CLS : K1$ = ""
AQ1$ = "OPTIMUM DESIGN OF STIFFENED COLUMNS"
AQ2$ = "STEEL GRADE FE 360"
AQ3$ = "TU MISKOLC DEPT.MATERIALS HANDL.EQUIP."
AQ4$ = "DR.JARNAI          1989(C)"
LINE (0, 78)-STEP(340, 60), 1, BF
GMZ = 0: KE2 = 0: KE3 = 0: MS2 = 0: VE2 = 0
NZX = 11: MZX = 3: LZ$ = AQ1$: GOSUB 6
NZX = 13: MZX = 12: LZ$ = AQ2$: GOSUB 6
NZX = 15: MZX = 2: LZ$ = AQ3$: GOSUB 6
NZX = 17: MZX = 2: LZ$ = AQ4$: GOSUB 6: GOTO 7
6 LOCATE NZX, MZX: PRINT LZ$: RETURN
7 S$ = INKEY$: IF S$ = "" THEN 7
  WIDTH LPRINT 132: GOTO 259
  DIM X(4), WW(4, 10), SB(4), D(4), H(10), AL(10), PH(10), B(4, 4), VV(4, 4), EI(4), BV(4)
  DIM Y(4, 4), V(4, 4), E(4): GOTO 259
9 ON J GOTO 12, 13, 14, 15, 16, 17, 19, 20, 22, 24
12 CH = 1400: RETURN
13 CH = 20: RETURN
14 CH = 200: RETURN
15 CH = 16: RETURN
16 RR = X(1) / 112 / X(2): CH = .8: RETURN
17 IF RR <= .31 THEN KKP = 1
  IF RR > .31 AND RR <= .8 THEN KKP = 1.14 - .454 * RR
  LAF1 = 1.15585 * (4 * X(1) * 100 / LL * X(2) * 100 / LL + 4 * X(3) * 100 / LL * X(4) * 100 / LL)
  LAF2 = 2 / 3 * (X(1) * 100 / LL) ^ 3 * X(2) * 100 / LL + 1 / 6 * (X(3) * 100 / LL) ^ 3 * X(4) * 100 / LL
  LAF3 = 2 * X(3) * 100 / LL * X(4) * 100 / LL * (X(1) * 100 / LL / 2 - X(2) * 100 / LL - X(3) * 100 / LL
    / 2) ^ 2
  LAF = LAF1 / (LAF2 + LAF3)
  IF LAF <= .2 THEN KK = 1!
  IF LAF > .2 AND LAF <= 1! THEN KK = 1 - .545 * (LAF - .2)
  IF LAF > 1! THEN KK = 1 / (.773 + LAF ^ 2)
  KU = KKP + .2304 * LAF ^ 2
  MO = 9.4 * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL) * KK * KU
  MI = 9.4 * KK * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL)
  IF MI > MO THEN MI = MO
  CH = MI: RETURN
19 NU = 9.4 * KKP * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL)
  CH = NU: RETURN
20 GAL = 11 * X(3) ^ 3 * X(4) / (3 * X(1) * X(2) ^ 3): ALP = SQR(SQR(1 + 2 * GAL))
  CH = GAL: RETURN
22 CH = 13.1: RETURN
24 CH = 20: RETURN
105 ON J GOTO 112, 113, 114, 115, 117, 117, 117, 117, 118, 117
112 CG = 50: RETURN
113 CG = 2: RETURN
114 CG = 20: RETURN
115 CG = 2: RETURN
117 CG = 0!: RETURN
118 CG = 10: RETURN
129 IF J < 5 THEN 137
  JK = J - 4: ON JK GOTO 138, 139, 145, 150, 152, 154
137 CX = X(J): RETURN
138 RR = X(1) / (112 * X(2)): CX = RR: RETURN
139 CCX = 100 * NU * FF / LL ^ 2: CX = CCX: RETURN
145 CX = 100 * NU * FF / LL ^ 2: RETURN

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150 IF X(2) >= X(1) / 56 THEN GAR = 8 * ALP ^ 2 * (X(1) / 56 / X(2)) ^ 2 * (1 + 2 * X(3) * X(4) / X(1) / X(2))
    - (ALP ^ 2 + 1) ^ 2 / 2
    IF X(2) < X(1) / 56 THEN GAR = 8 * ALP ^ 2 * (1 + 2 * X(3) * X(4) / X(1) / X(2)) - (ALP ^ 2 + 1) ^ 2 / 2
    CX = ABS(GAR) : RETURN
152 CX1 = X(3) / X(4) : CX = CX1 : RETURN
154 CX2 = X(1) * X(2) / X(3) / X(4) : CX = CX2 : RETURN
189 KO = KO + 1
    A = 4 * (X(1) * X(2) + X(3) * X(4))
    F = A : RETURN
247 GOSUB 9: GOSUB 105: GOSUB 129: UC = CH: LC = CG: XC = CX
    JJ = J - 1: WW(0, JJ) = LC: WW(1, JJ) = XC: WW(2, JJ) = UC
    PRINT " LOWER LIMIT--VALUE--UPPER LIMIT"
    PRINT " "; LC; XC; UC: IF LC > XC OR UC < XC THEN 255
    PRINT " VALID": GOTO 256
255 PRINT "..... VIOLATED"
256 S$ = INKEY$: IF S$ = "" GOTO 256
    RETURN
259 SCREEN 0, 0, 0: WIDTH 80: CLS : COLOR 14, 4, 10: PRINT "": NU = 1
    PRINT "*****"
    PRINT " MINIMUM CROSS-SECTIONAL AREA DESIGN "
    PRINT " CENTRALLY COMPRESSED STRUTS OF SQUARE "
    PRINT " BOX SECTION WITH LONGITUNINAL "
    PRINT " STIFFENERS "
    PRINT " dr.Jarmai TU MISKOLC 1989(C) "
    PRINT "*****"
    PRINT " PARAMETERS"
    EEE = 0
LPRINT ""
LPRINT "OPTIMUM DESIGN OF STIFFENED HOLLOW SQUARE SECTIONS UNDER COMPRESSION"
LPRINT " STEEL GRADE FE 360"
LPRINT "LL(MM) FF(N) X(1) X(2) X(3) X(4) 1B. 1J. 2B. 2J. 3B. 3J. 4B. 4J. 5B. 5J. 6B. 6J."
    LAF A FF/A HS/TS"
LPRINT " "
PRINT "OPTIMUM DESIGN OF STIFFENED HOLLOW SQUARE SECTIONS UNDER COMPRESSION"
PRINT " STEEL GRADE FE 360"
PRINT "LL(MM) FF(N) X(1) X(2) X(3) X(4) 1.CONSTRAINT.2.CONSTRAINT.3.CONSTRAINT.4.CONSTRAINT.KU GAL A"
PRINT " "
X(1) = 1100: X(2) = 20: X(3) = 200: X(4) = 16: LL = 6000: FF = 2E+07: NU = 1
PRINT " FIND THE OPTIMUM (1) OR CONTROL THE SECTION (2)";
469 INPUT AD: IF AD < 1 OR AD > 2 THEN LOCATE 2, 1: GOTO 469
IF AD = 1 THEN 579
473 J = 1: PRINT " HEIGHT OF WEB ..... (MM)": GOSUB 247
J = 2: PRINT " THICKNESS OF WEB ..... (MM)": GOSUB 247
J = 3: PRINT " HEIGHT OF STIFFENERS .....(MM)": GOSUB 247
J = 4: PRINT " THICKNESS OF STIFFENERS ...(MM)": GOSUB 247
J = 5: PRINT " 1.CONSTRAINT .....": GOSUB 247
J = 6: PRINT " 2.CONSTRAINT .....": GOSUB 247
J = 7: PRINT " 3.CONSTRAINT .....": GOSUB 247
J = 8: PRINT " 4.CONSTRAINT .....": GOSUB 247
J = 9: PRINT " 5.CONSTRAINT .....": GOSUB 247
J = 10: PRINT " 6.CONSTRAINT .....": GOSUB 247
IF EEE = 1 THEN 936
PRINT " STORE THE INPUT DATA ON DISK Y(1)/N(2)";
INPUT AF
IF AF = 2 THEN 537
B2$ = "BORD.DAT"
OPEN B2$ FOR OUTPUT AS 1
PRINT #1, LL; FF; X(1); X(2); X(3); X(4);
CLOSE 1
537 LOCATE 23, 1: PRINT " CHANGE THE STARTING POINT Y(1)/N(2) ";

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INPUT AJ
IF AJ = 2 THEN 569
543 LOCATE 14, 1: PRINT " STARTING VALUE OF THE HEIGHT OF WEB (MM)";
INPUT X(1)
LOCATE 15, 1: PRINT " STARTING VALUE OF THE THICKNESS OF WEB (MM)";
INPUT X(2)
LOCATE 16, 1: PRINT " STARTING VALUE OF THE HEIGHT OF STIFFENER (MM)";
INPUT X(3)
LOCATE 17, 1: PRINT " STARTING VALUE OF THE THICKNESS OF STIFFENER (MM)";
INPUT X(4)
LOCATE 18, 1: PRINT " MAKE ANOTHER CONTROL Y(1)/N(2) ";
INPUT AH
IF AH = 1 THEN EEE = 0: GOTO 473
569 PRINT " SEARCH FOR OPTIMUM Y(1)/N(2) "; : INPUT AG
IF AG = 1 THEN 579
IF AG = 2 THEN PRINT "***** THANK YOU FOR YOUR ATTENTION *****": END
579 CLS
FOR LL = 10000 TO 4000 STEP -2000
FOR FF = 2.1E+07 TO 1000000! STEP -5000000
CLS
X(1) = 1050: X(2) = 20: X(3) = 200: X(4) = 16
A = 4 * (X(1) * X(2) + X(3) * X(4))
M = -1: P = 4: PX = 1: NS = 0: L = 10
DE = .0000001: LX = 20: LS = 10
RESTORE
REM PRINT " VALUE OF CONVERGENCE FACTOR /OFFERED /1E-7";:INPUT DE
IF DE = 0 THEN DE = .0000001
REM PRINT " UPPER LIMIT OF ITERATION /OFFERED /20 ";:INPUT LX
IF LX = 0 THEN LX = 20
REM PRINT " STEP LENGHT/STARTING VALUE /OFFERED /10 ";:INPUT LS
IF LS = 0 THEN LS = 10
FOR J = 1 TO P: E(J) = X(J) / LS: NEXT J
595 LOCATE 1, 1: PRINT "***** ROSEN BROCK HILLCLIMB PROCEDURE *****"
LA = PX - 1
LOCATE 2, 1: PRINT " M P L LX PX LS DE"
LU = 0: ISS = 0: IQ = 0: KD = 0: TE = 0
LOCATE 3, 1: PRINT " "; M; P; " "; L; " "; LX; " "; PX; LS; DE
F1 = 0
FOR J = 1 TO L: GOSUB 9: GOSUB 105: AL(J) = (CH - CG) * .0001: NEXT J
FOR I = 1 TO P: FOR J = 1 TO P: V(I, J) = 0: IF I = J THEN V(I, J) = 1
NEXT J: NEXT I
FOR I = 1 TO P: EI(I) = E(I): NEXT I
615 FOR J = 1 TO P: IF NS = 0 THEN E(J) = EI(J)
SB(J) = 2: D(J) = 0: NEXT J
FD = F1
621 I = 1
IF IQ = 0 THEN 629
625 FOR K = 1 TO P: X(K) = X(K) + E(I) * V(I, K): NEXT K
FOR K = 1 TO L: H(K) = F0: NEXT K
629 GOSUB 169
F1 = M * F
IF ISS = 0 THEN F0 = F1
ISS = 1
IF ABS(FD - F1) > DE * ABS(F1) GOTO 641
TE = 1: GOTO 755
641 J = 1
643 GOSUB 9: GOSUB 105: GOSUB 129
UC = CH: LC = CG: XC = CX
IF XC < LC THEN 741

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IF XC > UC THEN 741
IF F1 < F0 THEN 741
IF XC < LC + AL(J) THEN 659
IF XC > UC - AL(J) THEN 659
H(J) = F0: GOTO 679
659 BW = AL(J)
IF XC < LC OR UC < XC THEN 669
IF LC < XC AND XC < LC + BW THEN 671
IF UC - BW < XC AND XC < UC THEN 673
PH(J) = 1: GOTO 679
669 PH(J) = 0: GOTO 677
671 PW = (LC + BW - XC) / BW: GOTO 675
673 PW = (XC - UC + BW) / BW
675 PH(J) = 1 - 3 * PW + 4 * PW * PW - 2 * PW * PW * PW
677 F1 = H(J) + (F1 - H(J)) * PH(J)
679 IF J = L THEN 683
J = J + 1: GOTO 643
683 IQ = 1: IF F1 < F0 THEN 741
D(I) = D(I) + E(I): E(I) = 3 * E(I): F0 = F1
IF SB(I) >= 1.5 THEN SB(I) = 1
689 FOR JJ = 1 TO P: IF SB(JJ) >= .5 THEN 751
NEXT JJ
FOR R = 1 TO P: FOR C = 1 TO P: VV(C, R) = 0: NEXT C: NEXT R
FOR R = 1 TO P: KR = R
FOR C = 1 TO P: FOR K = KR TO P: VV(R, C) = D(K) * V(K, C) + VV(R, C): NEXT K
B(R, C) = VV(R, C): NEXT C: NEXT R
BM = 0
FOR C = 1 TO P: BM = BM + B(1, C) * B(1, C): NEXT C
BM = SQR(BM)
FOR R = 2 TO P
IR = R - 1
FOR C = 1 TO P
SU = 0
FOR KK = 1 TO IR
SD = 0
FOR KJ = 1 TO P: SD = SD + VV(R, KJ) * V(KK, KJ): NEXT KJ
SU = SD * V(KK, C) + SU: NEXT KK
B(R, C) = VV(R, C) - SU: NEXT C: NEXT R
FOR R = 2 TO P
BB = 0
FOR K = 1 TO P: BB = BB + B(R, K) * B(R, K): NEXT K
BB = SQR(BB)
FOR C = 1 TO P: V(R, C) = B(R, C) / BB: NEXT C: NEXT R
LU = LU + 1: LA = LA + 1: IF LA = PX THEN 755
GOTO 615
741 IF IQ = 0 THEN 755
FOR L1 = 1 TO P: X(L1) = X(L1) - E(I) * V(I, L1): NEXT L1
E(I) = -.5 * E(I)
IF SB(I) < 1.5 THEN SB(I) = 0
GOTO 689
751 IF I = P THEN 621
I = I + 1: GOTO 625
755 LOCATE 4, 2: PRINT " STAGE"; " OBJECTIVE FUNCTION"; " PROGRESS"
LOCATE 5, 2: PRINT " "; LU; " "; -F0; " "; BM

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LOCATE 20, 1: PRINT " FUNCTION VALUE = "; F1
LOCATE 21, 1: PRINT " ITERATION NUMBER = "; LU
EEE = 1: FOR I = 1 TO P: X(I) = BV(I): NEXT I: GOTO 933: REM GOTO 473
933 B1 = .8: B5 = 20!
LOCATE 22, 1
LPRINT USING "#####.#####.###.# ##.# ###.# ##.# #.# #.## ##.## ##.## ##.##
##.## ##.## ##.## ##.# ##.# ##.# ##.# #.### ##### ##.# ##.##"; LL; FF;
X(1); X(2); X(3); X(4); B1; RR; MI; CCX; MU; CCX; GAL; GAR; X(4); CX1;
B5; CX2; LAF; A; FF / A; X(3) / X(4)
PRINT " "
831 LOCATE 23, 1: PRINT " PRESS A BOTTOM PLEASE"
899 S$ = INKEY$: IF S$ = "" THEN 899
NEXT FF
NEXT LL
936 PRINT " ***** THANK YOU FOR YOUR ATTENTION": END

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SCREEN 1, 0: COLOR 13, 4, 10: CLS : K1$ = ""
LINE (0, 78)-STEP(340, 60), 1, BF
AQ1$ = "BORDAZOTT CSOTARTO OPTIMALIS MERETEZES"
AQ2$ = "52-ES ACEL"
AQ3$ = "NME SZALLITOBBERENDEZESEK TSZ"
AQ4$ = "DR.JARMAI 1989(C)"
NZ% = 11: MZ% = 2: LZ$ = AQ1$: GOSUB 6
NZ% = 13: MZ% = 15: LZ$ = AQ2$: GOSUB 6
NZ% = 15: MZ% = 2: LZ$ = AQ3$: GOSUB 6
NZ% = 17: MZ% = 2: LZ$ = AQ4$: GOSUB 6: GOTO 7
6 LOCATE NZ%, MZ%: PRINT LZ$: RETURN
7 S$ = INKEY$: IF S$ = "" THEN 7
WIDTH LPRINT 80: GOTO 259
DIM X(4), NW(4, 10), SB(4), D(4), H(10), AL(10), PH(10), B(4, 4), VV(4, 4), EI(4), BV(4)
DIM Y(4, 4), V(4, 4), E(4): GOTO 259
9 ON J GOTO 12, 13, 14, 15, 16, 17, 19, 20, 22, 24
12 CH = 1400: RETURN
13 CH = 25: RETURN
14 CH = 200: RETURN
15 CH = 20: RETURN
16 RR = X(1) / 8B / X(2): CH = .8: RETURN
17 IF RR <= .31 THEN KKP = 1
IF RR > .31 AND RR <= .8 THEN KKP = 1.14 - .454 * RR
LAF1 = 1.74607 * (4 * X(1) * 100 / LL * X(2) * 100 / LL + 4 * X(3) * 100 / LL * X(4) * 100 / LL)
LAF2 = 2 / 3 * (X(1) * 100 / LL) ^ 3 * X(2) * 100 / LL + 1 / 6 * (X(3) * 100 / LL) ^ 3 * X(4) *
100 / LL
LAF3 = 2 * X(3) * 100 / LL * X(4) * 100 / LL * (X(1) * 100 / LL / 2 - X(2) * 100 / LL - X(3) *
100 / LL / 2) ^ 2
LAF = LAF1 / (LAF2 + LAF3)
IF LAF <= .2 THEN KK = 1!
IF LAF > .2 AND LAF <= 1! THEN KK = 1 - .545 * (LAF - .2)
IF LAF > 1! THEN KK = 1 / (.773 + LAF ^ 2)
KU = KKP + .2304 * LAF ^ 2
MO = 13.4 * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL) * KK * KU
MI = 13.4 * KK * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL)
IF MI > MO THEN MI = MO
CH = MI: RETURN

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19 MU = 13.4 * KKP * (X(1) * 100 / LL * X(2) * 100 / LL + X(3) * 100 / LL * X(4) * 100 / LL)
   CH = MU: RETURN
20 GAL = 11 * X(3) ^ 3 * X(4) / (3 * X(1) * X(2) ^ 3): ALP = SQR(SQR(1 + 2 * GAL))
   CH = GAL: RETURN
22 CH = 10.7: RETURN
24 CH = 20: RETURN
105 ON J GOTO 112, 113, 114, 115, 117, 117, 117, 117, 118, 117
112 CG = 50: RETURN
113 CG = 2: RETURN
114 CG = 20: RETURN
115 CG = 2: RETURN
117 CG = 0!: RETURN
118 CG = 8: RETURN
129 IF J < 5 THEN 137
   JK = J - 4: ON JK GOTO 138, 139, 145, 150, 152, 154
137 CX = X(J): RETURN
138 RR = X(1) / (112 * X(2)): CX = RR: RETURN
139 CCX = 100 * NU * FF / LL ^ 2: CX = CCX: RETURN
145 CX = 100 * NU * FF / LL ^ 2: RETURN
150 IF X(2) >= X(1) / 44 THEN GAR = 8 * ALP ^ 2 * (X(1) / 44 / X(2)) ^ 2 * (1 + 2 * X(3) *
   X(4) / X(1) / X(2)) - (ALP ^ 2 + 1) ^ 2 / 2
   IF X(2) < X(1) / 44 THEN GAR = 8 * ALP ^ 2 * (1 + 2 * X(3) * X(4) / X(1) / X(2)) - (ALP ^ 2 + 1) ^ 2 / 2
   CX = ABS(GAR): RETURN
152 CX = X(3) / X(4): RETURN
154 CX = X(1) * X(2) / X(3) / X(4): RETURN
189 KD = KD + 1
   A = 4 * (X(1) * X(2) + X(3) * X(4))
   F = A: RETURN
247 GOSUB 9: GOSUB 105: GOSUB 129: UC = CH: LC = CG: XC = CX
   JJ = J - 1: WW(0, JJ) = LC: WW(1, JJ) = XC: WW(2, JJ) = UC
   PRINT "  ALSO HATAR--ERTEK--FELSO HATAR"
   PRINT "      "; LC; XC; UC: IF LC > XC OR UC < XC THEN 255
   PRINT "      MEGFELEL": GOTO 256
255 PRINT "      NEM FELEL MEG"
256 S$ = INKEY$: IF S$ = "" GOTO 256
   RETURN
259 SCREEN 0, 0, 0: WIDTH 80: CLS : COLOR 14, 4, 10: PRINT "": NU = 1
   PRINT "*****"
   PRINT "      NYOMOTT,NEGYSZOGCSO SZELVENYU      "
   PRINT "      OSZLOP OPTIMALAS      "
   PRINT "      NME 1989(C)      "
   PRINT "*****"
   PRINT "      PARAMETEREK"
   EEE = 0
   LPRINT "BORDAZOTT,NYOMOTT NEGYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
   LPRINT "      52-ES ACEL"
   LPRINT "LL(MM) FF(N) X(1) X(2) X(3) X(4) 1B. 1J. 2B. 2J. 3B. 3J. 4B. 4J. 5B. 5J. 6B. 6J."
   LAF A FF/A TS/RS KU"
   LPRINT " "
   PRINT "BORDAZOTT,NYOMOTT NEGYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
   PRINT "      52-ES ACEL "
   PRINT "LL(MM) FF(N) X(1) X(2) X(3) X(4) 1.FEL.2.FEL.3.FEL.4.FEL.KU GAL A"
   PRINT " "
   X(1) = 1100: X(2) = 20: X(3) = 200: X(4) = 16: LL = 6000: FF = 2E+07: NU = 1
   PRINT " OPTIMALNI AKAR (1) '96Y ADOTT SZELVENYT ELLENORIZNI (2)";
469 INPUT AD: IF AD < 1 OR AD > 2 THEN LOCATE 2, 1: GOTO 469
   IF AD = 1 THEN 579
473 J = 1: PRINT " GERINCHAGASSAG ..... (MM)": GOSUB 247
   J = 2: PRINT " GERINCVASTAGSAG ..... (MM)": GOSUB 247
   J = 3: PRINT " BORDAMAGASSAG.....(MM)": GOSUB 247
   J = 4: PRINT " BORDAVASTAGSAG.....(MM)": GOSUB 247

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J = 5: PRINT " 1.FELTETEL.....": GOSUB 247
J = 6: PRINT " 2.FELTETEL.....": GOSUB 247
J = 7: PRINT " 3.FELTETEL.....": GOSUB 247
J = 8: PRINT " 4.FELTETEL.....": GOSUB 247
J = 9: PRINT " 5.FELTETEL.....": GOSUB 247
J = 10: PRINT " 6.FELTETEL.....": GOSUB 247
IF EEE = 1 THEN 936
PRINT " BEMEND ADATOKAT LEMEZRE VIGYEM I(1)/N(2)";
INPUT AF
IF AF = 2 THEN 537
B2$ = "B52.DAT"
OPEN B2$ FOR OUTPUT AS 1
PRINT #1, L2; H; AM; CS; GM;
CLOSE 1
537 LOCATE 22, 1: PRINT " VALTOZTATJA A KEZDOPOINTOT I(1)/N(2)";
INPUT AJ
IF AJ = 2 THEN 569
543 LOCATE 14, 1: PRINT " GERINCMAGASSAG KEZDOERTEKE(MM)";
INPUT X(1)
LOCATE 15, 1: PRINT " GERINCVASTAGSAG KEZDOERTEKE(MM)";
INPUT X(2)
LOCATE 16, 1: PRINT " BORDAMAGASSAG KEZDOERTEKE(MM)";
INPUT X(3)
LOCATE 17, 1: PRINT " BORDAVASTAGSAG KEZDOERTEKE(MM)";
INPUT X(4)
LOCATE 23, 1: PRINT " UJABB ELLENORZEST VEGEZ I(1)/N(2) ";
INPUT AH
IF AH = 1 THEN EEE = 0: GOTO 473
569 LOCATE 24, 1: PRINT " AKAR OPTIMALNI I(1)/N(2) ";
INPUT AG: IF AG = 1 THEN 579
IF AF = 2 THEN PRINT "***** KOSZONOM A FIGYELMET *****: END
579 CLS
FOR LL = 10000 TO 4000 STEP -2000
FOR FF = 2.1E+07 TO 1000000! STEP -5000000
CLS
X(1) = 1000: X(2) = 25: X(3) = 200: X(4) = 20
A = 4 * (X(1) * X(2) + X(3) * X(4))
M = -1: P = 4: PX = 1: NS = 0: L = 10
DE = .0000001: LX = 20: LS = 10
RESTORE
REM PRINT " A KONVERGENCIA-KRITERIUM ERTEKE /AJANLOTT /1E-7";:INPUT DE
IF DE = 0 THEN DE = .0000001
REM PRINT " AZ ITERACIOSZAM NAGYSAGA /AJANLOTT /20";:INPUT LX
IF LX = 0 THEN LX = 20
REM PRINT " A LEPESTAV A KEZDOERTEK HANYAD RESZE /AJANLOTT /10";:INPUT LS
IF LS = 0 THEN LS = 10
FOR J = 1 TO P: E(J) = X(J) / LS: NEXT J
595 LOCATE 1, 1: PRINT "*****ROSENBRCK HILLCLIMB ELJARAS*****

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SCREEN 1, 0: COLOR 13, 4, 10: CLS : K1$ = ""
AQ1$ = "NEGYSZOGCSO OSZLOP OPTIMALIS MERETEZES"
AQ2$ = "37-ES ACEL"
AQ3$ = "NNE SZALLITBERENDEZESOK TSZ"
AQ4$ = "DR.JARMAI 1989(C)"
LINE (0, 78)-STEP(340, 60), 1, BF
GM2 = 0: KE2 = 0: KE3 = 0: MS2 = 0: VE2 = 0
NZX = 11: MZX = 2: LZ$ = AQ1$: GOSUB 6

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NZX = 13: MZX = 16: LZ$ = AQ2$: GOSUB 6
NZX = 15: MZX = 2: LZ$ = AQ3$: GOSUB 6
NZX = 17: MZX = 2: LZ$ = AQ4$: GOSUB 6: GOTO 7
6 LOCATE NZX, MZX: PRINT LZ$: RETURN
7 S$ = INKEY$: IF S$ = "" THEN 7
WIDTH LPRINT 132: GOTO 259
DIM X(2), WW(2, 6), SB(2), D(2), H(6), AL(6), PH(6), B(2, 2), VV(2, 2), EI(2), BV(2)
DIM Y(2, 2), V(2, 2), E(2): GOTO 259
9 ON J GOTO 13, 15, 16, 17, 19, 20
13 CH = 1200: RETURN
15 CH = 35: RETURN
16 RR = X(1) * 100 / LL / 56 / (X(2) * 100 / LL): CH = 1!: RETURN
17 IF RR <= .31 THEN KKP = 1
  IF RR > .31 AND RR <= 1! THEN KKP = 1.14 - .454 * RR
  LAF = 2.63346 / (X(1) * 100 / LL): IF LAF <= .2 THEN KK = 1!
  IF LAF > .2 AND LAF <= 1! THEN KK = 1 - .545 * (LAF - .2)
  IF LAF > 1! THEN KK = 1 / (.773 + LAF ^ 2)
  KU = KKP + 1.5975 / (X(1) * 100 / LL) ^ 2
  MO = 9.4 * X(1) * 100 / LL * X(2) * 100 / LL * KK * (KKP + 1.5975 / (X(1) * 100 / LL) ^ 2)
  MI = 9.4 * KK * X(1) * 100 / LL * X(2) * 100 / LL
  IF MI > MO THEN MI = MO
  CH = MI: RETURN
19 MU = 9.4 * KKP * X(1) * 100 / LL * X(2) * 100 / LL: CH = MU: RETURN
20 CH = 1.05: RETURN
105 ON J GOTO 113, 115, 117, 117, 117, 118
113 CG = 50: RETURN
115 CG = 2: RETURN
117 CG = 0!: RETURN
118 CG = .92: RETURN
129 IF J < 3 THEN 137
  JK = J - 2: ON JK GOTO 138, 139, 145, 146
137 CX = X(J): RETURN
138 RR = X(1) * 100 / LL / (56 * X(2) * 100 / LL): CX = RR: RETURN
139 CCX = 100 * NU * FF / LL ^ 2: CX = CCX: RETURN
145 CX = 100 * NU * FF / LL ^ 2: RETURN
146 CX = KU: RETURN
189 KO = KO + 1
  A = 4 * X(1) * X(2)
  F = A: RETURN
247 GOSUB 9: GOSUB 105: GOSUB 129: UC = CH: LC = CG: XC = CX
  JJ = J - 1: WW(0, JJ) = LC: WW(1, JJ) = XC: WW(2, JJ) = UC
  PRINT "  ALSO HATAR--ERTEK--FELSO HATAR"
  PRINT "    "; LC; XC; UC: IF LC > XC OR UC < XC THEN 255
  PRINT "      MEGFELEL": GOTO 256
255 PRINT "
  NEM FELEL MEG"
256 S$ = INKEY$: IF S$ = "" GOTO 256
RETURN
259 SCREEN 0, 0, 0: WIDTH 80: CLS : COLOR 14, 4, 10: PRINT "": NU = 1
PRINT "*****"
PRINT "  NYOMOTT, NEGYSZOGCSO SZELVENYU      "
PRINT "          OSZLOP OPTIMALAS          "
PRINT "  dr.Jarmai          NME 1989(C)      "
PRINT "*****"
PRINT "          PARAMETEREK"
X(1) = 850: X(2) = 35
EEE = 0
LPRINT "  NYOMOTT NEGYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
LPRINT "          37-ES ACEL"
LPRINT "LL(MM) FF(N) X(1) X(2) 1.FELT. 2.FELT. 3.FELT. CCX LAF  A  FF/A  KU"
LPRINT " "

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PRINT " NYMOTT NEBYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
PRINT " 37-ES ACEL"
PRINT "LL(MM) FF(N) X(1) X(2) 1.FELT. 2.FELT. 3.FELT. CCX LAF A FF/A"
PRINT " "
PRINT " OPTIMALNI AKAR (1) VAGY ADOTT SZELVENYT ELLENORIZNI (2)";
469 INPUT AD: IF AD < 1 OR AD > 2 THEN LOCATE 2, 1: GOTO 469
IF AD = 1 THEN 579
473 J = 1: PRINT " GERINCMASSAG ..... (MM)": GOSUB 247
J = 2: PRINT " GERINCVASTAGSAG ..... (MM)": GOSUB 247
J = 3: PRINT " 1.FELTETEL.....": GOSUB 247
J = 4: PRINT " 2.FELTETEL.....": GOSUB 247
J = 5: PRINT " 3.FELTETEL.....": GOSUB 247
J = 6: PRINT " 4.FELTETEL.....": GOSUB 247
IF EEE = 1 THEN 936
LOCATE 22, 1: PRINT " BEMEND ADATOKAT LEMEZRE VIGYEM I(1)/N(2)"; : INPUT AF
IF AF = 2 THEN 537
B2$ = "TAD1.DAT"
OPEN B2$ FOR OUTPUT AS 1
PRINT #1, L2; H; AH; CS; GM;
CLOSE 1
537 LOCATE 23, 1: PRINT " VALTOZTATJA A KEZDOPONTOT I(1)/N(2)"; : INPUT AJ
IF AJ = 2 THEN 569
REM FOR LL = 4000 TO 4000 STEP -2000
REM FOR FF = 1.1E+07 TO 1000000! STEP -5000000!
543 LOCATE 14, 1: PRINT " GERINCMASSAG KEZDOERTEKE(MM)"; : INPUT X(1)
LOCATE 15, 1: PRINT " GERINCVASTAGSAG KEZDOERTEKE(MM)"; : INPUT X(2)
LOCATE 18, 1: PRINT " UJABB ELLENORZEST VEGEZ I(1)/N(2)"; : INPUT AH
IF AH = 1 THEN EEE = 0: GOTO 473
569 LOCATE 24, 1: PRINT " AKAR OPTIMALNI I(1)/N(2)"; : INPUT AG
IF AG = 1 THEN 579
IF AF = 2 THEN PRINT "***** KOSZONOM A FIGYELMET *****: END
579 CLS
FOR LL = 10000 TO 4000 STEP -2000
FOR FF = 2.1E+07 TO 2.1E+07 STEP -5000000!
CLS
REM X(1) = 1200: X(2) = 25
A = 4 * X(1) * 100 / LL * X(2) * 100 / LL
M = -1: P = 2: PX = 1: NS = 0: L = 6
DE = 1E-20: LX = 50: LS = 10
RESTORE
REM PRINT " A KONVERGENCIA-KRITERIUM ERTEKE /AJANLOTT /1E-7"; : INPUT DE
IF DE = 0 THEN DE = .0000001
REM PRINT " AZ ITERACIOSZAM NAGYSAGA /AJANLOTT /20"; : INPUT LX
IF LX = 0 THEN LX = 20
REM PRINT " A LEPESTAV A KEZDOERTEK HANYAD RESZE /AJANLOTT /10"; : INPUT LS
IF LS = 0 THEN LS = 10
FOR J = 1 TO P: E(J) = X(J) / LS: NEXT J
595 LOCATE 1, 1: PRINT "*****ROSENBROCK HILLCLIMB ELJARAS*****

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SCREEN 1, 0: COLOR 13, 4, 10: CLS : K1$ = ""
AQ1$ = "NEBYSZOGCSO OSZLOP OPTIMALIS MERETEZES"
AQ2$ = "52-ES ACEL"
AQ3$ = "NME SZALLITOBERENDEZESOK TSZ"
AQ4$ = "DR.JARMAI 1989(C)"
LINE (0, 78)-STEP(340, 60), 1, BF
GM2 = 0: KE2 = 0: KE3 = 0: MS2 = 0: VE2 = 0
NZX = 11: MZX = 2: LZ$ = AQ1$: GOSUB 6
NZX = 13: MZX = 15: LZ$ = AQ2$: GOSUB 6
NZX = 15: MZX = 2: LZ$ = AQ3$: GOSUB 6
NZX = 17: MZX = 2: LZ$ = AQ4$: GOSUB 6: GOTO 7
6 LOCATE NZX, MZX: PRINT LZ$: RETURN
7 S$ = INKEY$: IF S$ = "" THEN 7
GOTO 259
DIM X(2), MW(2, 6), SB(2), D(2), H(6), AL(6), PH(6), B(2, 2), VV(2, 2), EI(2), BV(2)

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DIM Y(2, 2), V(2, 2), E(2): GOTO 259
9 ON J GOTO 13, 15, 16, 17, 19, 20
13 CH = 1400: RETURN
15 CH = 30: RETURN
16 RR = X(1) * 100 / LL / 44 / (X(2) * 100 / LL): CH = 1!: RETURN
17 IF RR <= .31 THEN KKP = 1
  IF RR > .31 AND RR <= 1! THEN KKP = 1.14 - .454 * RR
  LAF = 3.23673 / (X(1) * 100 / LL): IF LAF <= .2 THEN KK = 1!
  IF LAF > .2 AND LAF <= 1! THEN KK = 1 - .545 * (LAF - .2)
  IF LAF > 1! THEN KK = 1 / (.773 + LAF ^ 2)
  KU = KKP + 2.41376 / (X(1) * 100 / LL) ^ 2
  MO = 14.2 * X(1) * 100 / LL * X(2) * 100 / LL * KK * (KKP + 2.41376 / (X(1) * 100 / LL) ^ 2)
  MI = 14.2 * KK * X(1) * 100 / LL * X(2) * 100 / LL
  IF MI > MO THEN MI = MO
  CH = MI: RETURN
19 MU = 14.2 * KKP * X(1) * 100 / LL * X(2) * 100 / LL: CH = MU: RETURN
20 CH = 1.05: RETURN
105 ON J GOTO 113, 115, 117, 117, 117, 118
113 CG = 50: RETURN
115 CG = 2: RETURN
117 CG = 0!: RETURN
118 CG = .93: RETURN
129 IF J < 3 THEN 137
  JK = J - 2: ON JK GOTO 138, 139, 145, 146
137 CX = X(J): RETURN
138 RR = X(1) * 100 / LL / (44 * X(2) * 100 / LL): CX = RR: RETURN
139 CCX = 100 * NU * FF / LL ^ 2: CX = CCX: RETURN
145 CX = 100 * NU * FF / LL ^ 2: RETURN
146 CX = KU: RETURN
189 KO = KO + 1
  A = 4 * X(1) * X(2)
  F = A: RETURN
247 GOSUB 9: GOSUB 105: GOSUB 129: UC = CH: LC = CG: XC = CX
  JJ = J - 1: WW(0, JJ) = LC: WW(1, JJ) = XC: WW(2, JJ) = UC
  PRINT " ALSO HATAR--ERTEK--FELSO HATAR"
  PRINT " "; LC; XC; UC: IF LC > XC OR UC < XC THEN 255
  PRINT " NEGFLELE": GOTO 256
255 PRINT "..... NEM FELEL MEG"
256 S$ = INKEY$: IF S$ = "" GOTO 256
  RETURN
259 SCREEN 0, 0, 0: WIDTH 80: CLS : COLOR 14, 4, 10: PRINT "": NU = 1
  PRINT "*****"
  PRINT " NYOMOTT,NEGYSZOGCSO SZELVENYU "
  PRINT " OSZLOP OPTIMALAS "
  PRINT " NME 1989(C) "
  PRINT "*****"
  PRINT " PARAMETEREK"
  X(1) = 650: X(2) = 30
  EEE = 0
  PRINT " NYOMOTT NEGYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
  PRINT " 52-ES ACEL"
  PRINT "LL(MM) FF(N) X(1) X(2) 1.FELT. 2.FELT. 3.FELT. CCX LAF A FF/A KU"
  PRINT " "
  PRINT " NYOMOTT NEGYSZOGCSO-SZELVENY OPTIMALIS MERETEZESE"
  PRINT " 52-ES ACEL "
  PRINT "LL(MM) FF(N) X(1) X(2) 1.FELT.2.FELT.3.FELT. CCX LAF A FF/A"
  PRINT " "
  PRINT " OPTIMALNI AKAR (1) VAGY ADOTT SZELVENYT ELLENORIZNI (2)"
469 INPUT AD: IF AD < 1 OR AD > 2 THEN LOCATE 2, 1: GOTO 469
  IF AD = 1 THEN 579
473 J = 1: PRINT " GERINCMAGASSAG ..... (MM)": GOSUB 247
  J = 2: PRINT " GERINCVASTAGSAG ..... (MM)": GOSUB 247

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J = 3: PRINT " 1.FELTETEL.....": GOSUB 247
J = 4: PRINT " 2.FELTETEL.....": GOSUB 247
J = 5: PRINT " 3.FELTETEL.....": GOSUB 247
J = 6: PRINT " 4.FELTETEL.....": GOSUB 247
IF EEE = 1 THEN 936
REM PRINT" BEMEND ADATOKAT LEMEZRE VIGYEM I(1)/N(2)"
REM INPUT AF
REM IF AF=2 THEN 537
REM OPEN B2$ FOR OUTPUT AS 1
REM PRINT#1,L2;H;AM;CS;GM;
REM CLOSE 1
537 LOCATE 23, 1: PRINT " VALTOZTATJA A KEZDOPONTOT I(1)/N(2)";
INPUT AJ
IF AJ = 2 THEN 569
543 LOCATE 22, 1: PRINT " GERINCMAGASSAG KEZDOERTEKE(MM)";
INPUT X(1)
LOCATE 23, 1: PRINT " GERINCVASTAGSAG KEZDOERTEKE(MM)";
INPUT X(2)
LOCATE 24, 1: PRINT " UJABB ELLENORZEST VEGEZ I(1)/N(2)";
INPUT AH
IF AH = 1 THEN EEE = 0: GOTO 473
569 PRINT " AKAR OPTIMALNI I(1)/N(2)"; : INPUT AG
IF AG = 1 THEN 579
IF AF = 2 THEN PRINT "***** KOSZONOM A FIGYELMET *****": END
579 CLS
FOR LL = 4000 TO 4000 STEP -2000
FOR FF = 2.1E+07 TO 1000000! STEP -5000000!
CLS
REM X(1) = 800: X(2) = 30
A = 4 * X(1) * 100 / LL * X(2) * 100 / LL
M = -1: P = 2: PX = 1: NS = 0: L = 5
DE = 9.999946E-41: LX = 80: LS = 10
RESTORE
REM PRINT" A KONVERGENCIA-KRITERIUM ERTEKE /AJANLOTT /1E-7";INPUT DE
IF DE = 0 THEN DE = .0000001
REM PRINT" AZ ITERACIOSZAM NAGYSAGA /AJANLOTT /20";INPUT LX
IF LX = 0 THEN LX = 20
REM PRINT" A LEPESTAV A KEZDOERTEK HANYAD RESZE /AJANLOTT /10"; INPUT LS
IF LS = 0 THEN LS = 10
FOR J = 1 TO P: E(J) = X(J) / LS: NEXT J
595 LOCATE 1, 1: PRINT "*****ROSENBRock HILLCLIMB ELJARAS*****"
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