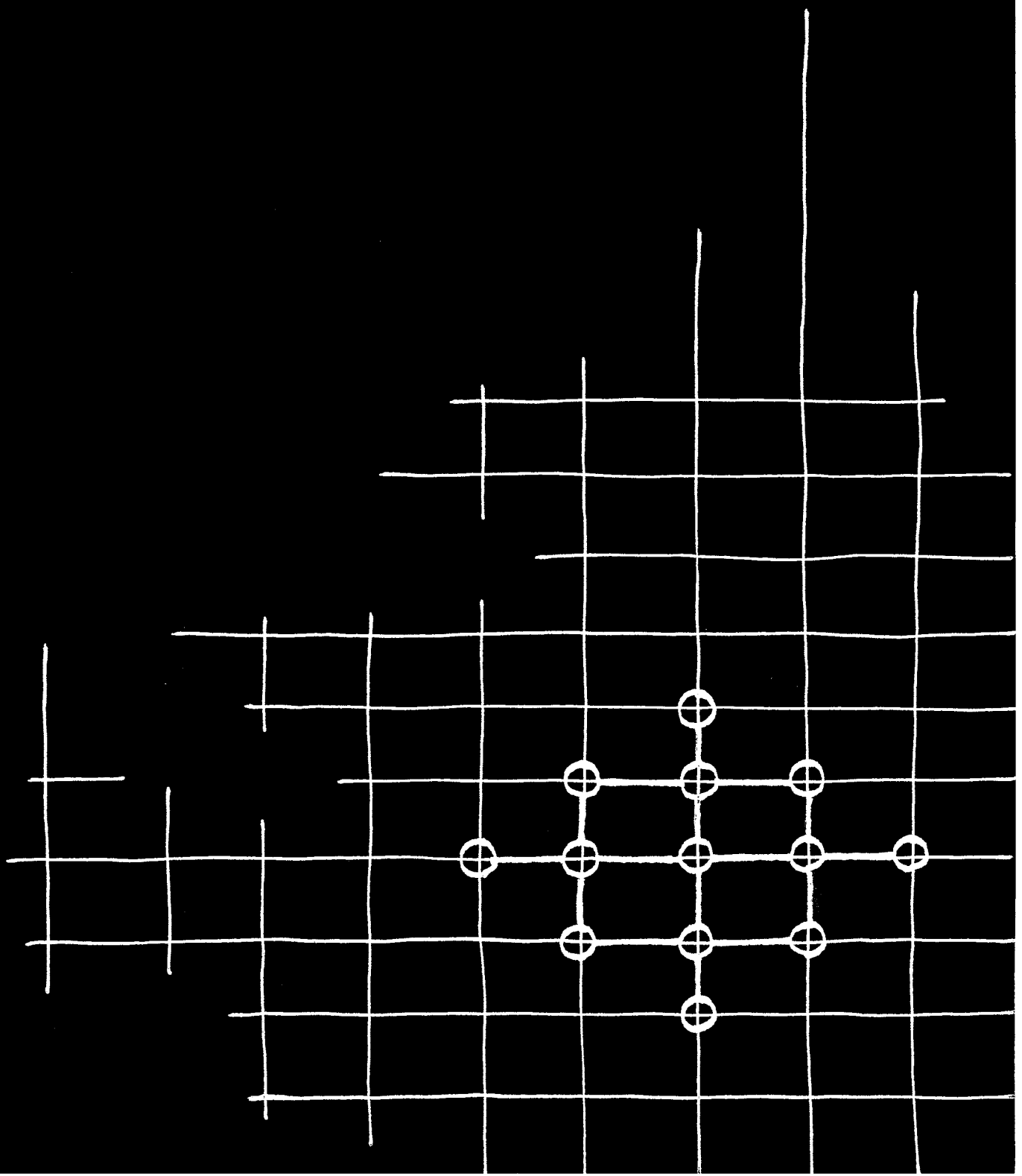


TWO WAY PLATES:
DEFLECTIONS AND MOMENTS BY FINITE DIFFERENCES

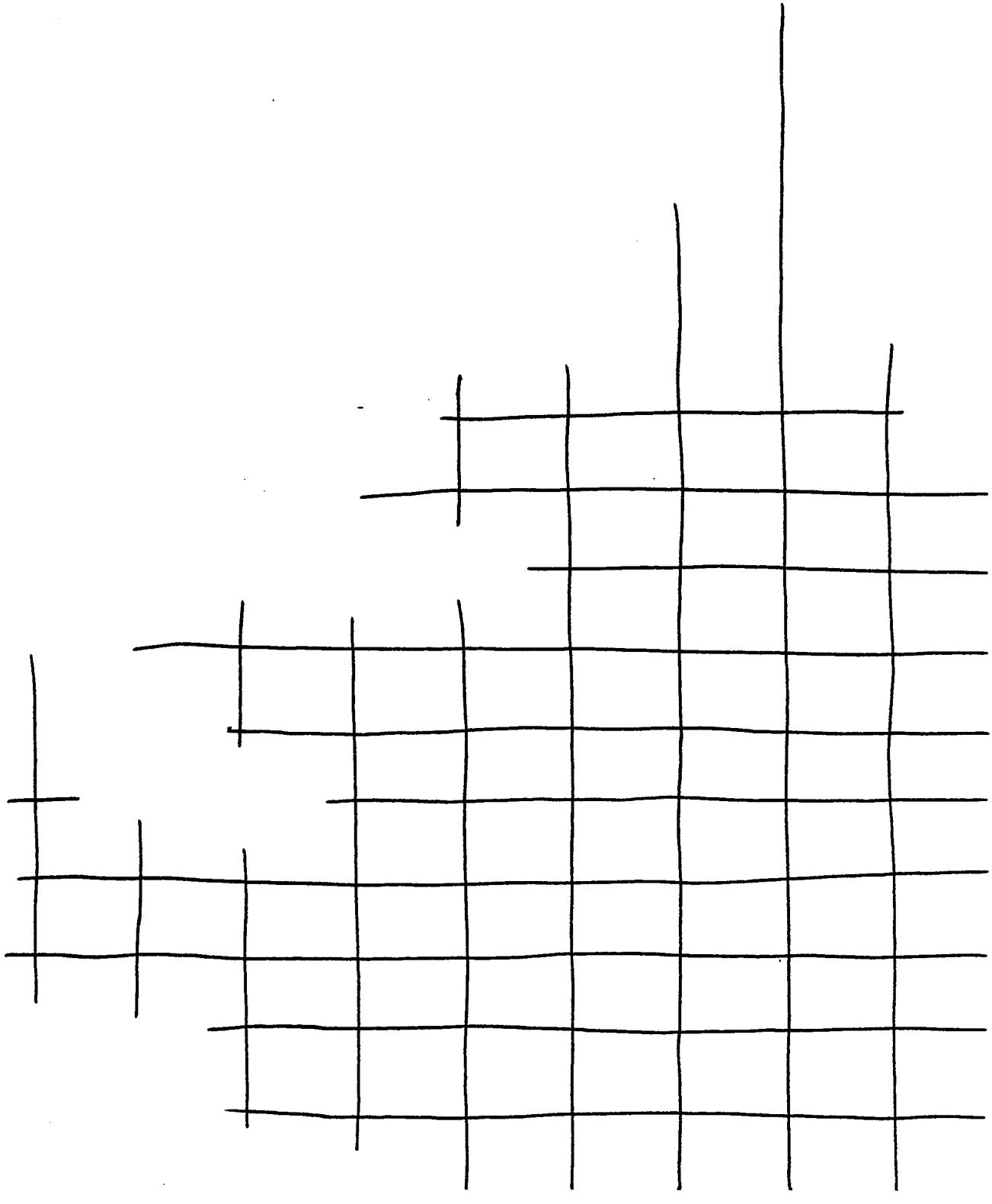
Creative Component
Fall Semester 1985

Charles A. Wall

Except the Lord builds the
house, they labor in vain
who build it.

psalms 127:1

Thanks must be given to many people, among whom are professors Louis Bass, John Bryant, George Chamberlain, Bill Haire, Allen Kelly, Jim Knight, and Arlyn Orr. These men all contributed in making my college career challenging and worthwhile. Special thanks to my wife, Terri, for putting up with me and encouraging me throughout this project.



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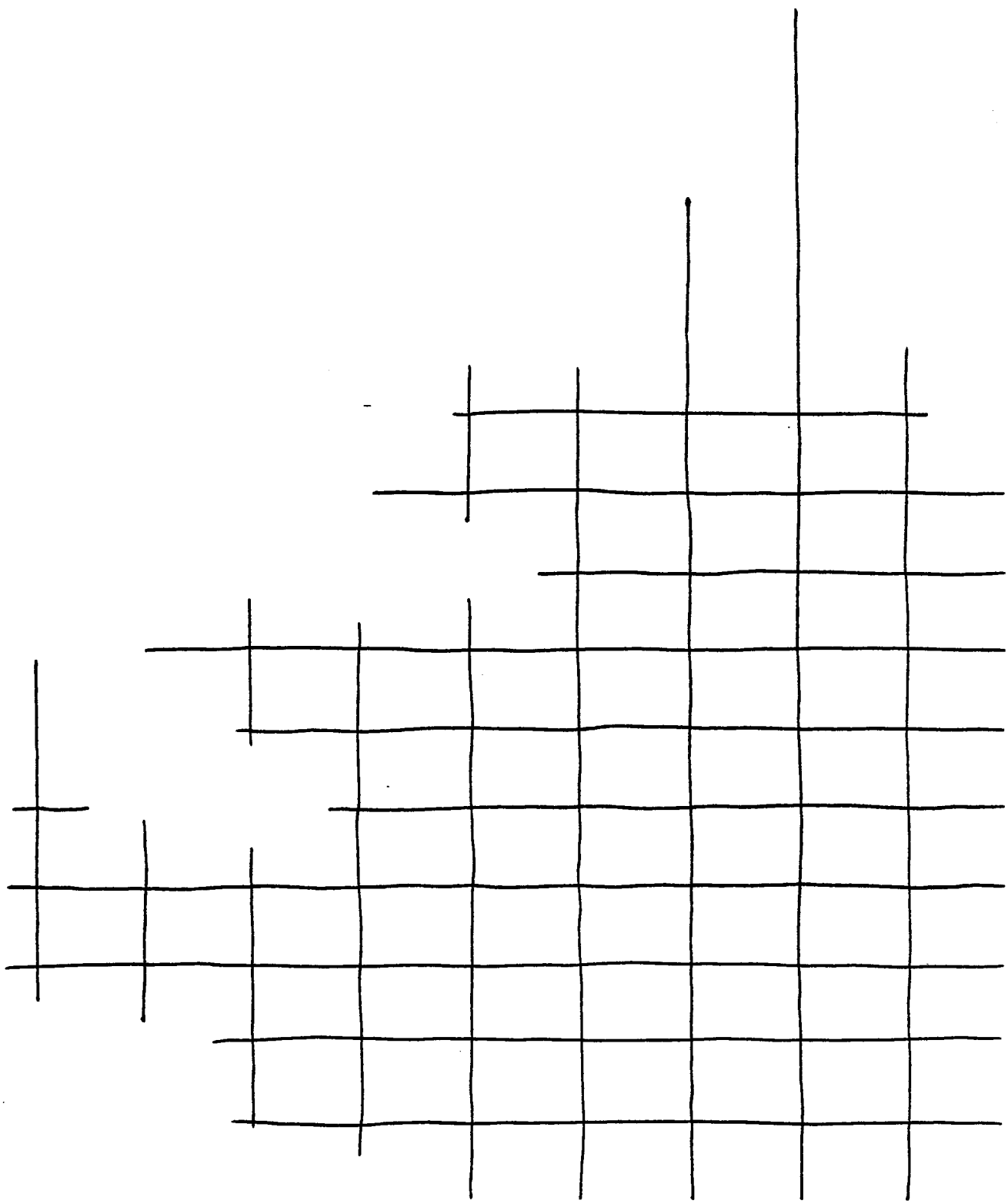
Foreword

The purpose of this project is to provide a design tool to determine moments in two way concrete plates with which the reinforcing steel is designed.

The resulting program is capable of handling differing edge support conditions, varying strengths of concrete and many combinations of loads. The different edge conditions are fixed, simple and free. Any combination of these three conditions can be handled by the program except one having three free edges, and in this case, it is easier to design for a cantilever retaining wall. Loads may be applied as point loads, uniform loads and linearly changing loads.

Assumptions made to allow for the solutions to be approximately accurate are: the material must be homogenous and isotropic; must conform to Hooke's law; the plate or slab is of uniform thickness which is small as compared with its lateral dimensions; the deflections of the loaded plate are small as compared with its thickness.

Again this program is intended to be used as a design tool. It does not give exact solutions, but the solutions it does give are within the range of 5% error. This accuracy is considered to be satisfactory for design purposes.



Finite differences is an approximate method to evaluate differential equations which may be difficult to solve explicitly. If a differential equation can be written for a system, then finite differences can be used on the system as well, provided that boundary conditions can be simulated.

The finite difference operators used in this project were the operators for the load and also for the moments in the x and y directions. The general differential equation for the load is

$$\frac{\partial^4 w}{\partial x^4} + \frac{2\partial^4 w}{\partial x^2 \partial y^2} + \frac{\partial^4 w}{\partial y^4} = \frac{P}{D}$$

where, w is deflection
P is load
D is flexural rigidity per unit length of the plate, $=EI/(1-\mu^2)$

The general differential equations for moments in the x and y directions are

$$M_x = D\left[\frac{\partial^2 w}{\partial x^2} + \mu\frac{\partial^2 w}{\partial y^2}\right]$$

$$My = D\left[\frac{\partial^2 w}{\partial y^2} + \mu\frac{\partial^2 w}{\partial x^2}\right]$$

where, M_x is moments in the x direction
M_y is moments in the y direction
μ is Poisson's ratio

The finite difference operators for the terms in these differential equations are

$$\frac{\partial^4 w}{x^4} = \frac{1}{B^4}\begin{bmatrix} 1 & -4 & 6 & -4 & 1 \end{bmatrix}$$

$$\frac{\partial^2 w}{\partial x^2} = \frac{1}{B^2}\begin{bmatrix} 1 & -2 & 1 \end{bmatrix}$$

$$\mu\frac{\partial^2 w}{\partial x^2} = \frac{\mu}{B^2}\begin{bmatrix} 1 & -2 & 1 \end{bmatrix}$$

$$\frac{\partial^4 w}{\partial x^2 \partial y^2} = \frac{1}{A^2B^2}\begin{bmatrix} 1 & -2 & 1 \\ -2 & 4 & -2 \\ 1 & -2 & 1 \end{bmatrix}$$

$$\frac{\partial^4 w}{\partial y^4} = \frac{1}{A^4}\begin{bmatrix} 1 \\ -4 \\ 6 \\ -4 \\ 1 \end{bmatrix}, \quad \frac{\partial^2 w}{\partial y^2} = \frac{1}{A^2}\begin{bmatrix} 1 \\ -2 \\ 1 \end{bmatrix}, \quad \mu\frac{\partial^2 w}{\partial y^2} = \frac{\mu}{A^2}\begin{bmatrix} 1 \\ -2 \\ 1 \end{bmatrix}.$$

Combined into the load operator,

$$P = D\left[\frac{\partial^4 w}{\partial x^4} + 2\frac{\partial^4 w}{\partial x^2 \partial y^2} + \frac{\partial^4 w}{\partial y^4}\right] =$$

$$\frac{D}{A^4B^4}\begin{bmatrix} & & B^4 & & \\ & -2A^2B^2 & -4B^4-4A^2B^2 & 2A^2B^2 & \\ -A^4 & -4A^4-4A^2B^2 & 6A^4+8A^2B^2+6B^4 & -4A^4-4A^2B^2 & A^4 \\ & -2A^2B^2 & -4B^4-4A^2B^2 & 2A^2B^2 & \\ & & B^4 & & \end{bmatrix}.$$

Combined into the moment x operator,

$$M_x = D\left[\frac{\partial^2 w}{\partial x^2} + \mu\frac{\partial^2 w}{\partial y^2}\right]$$

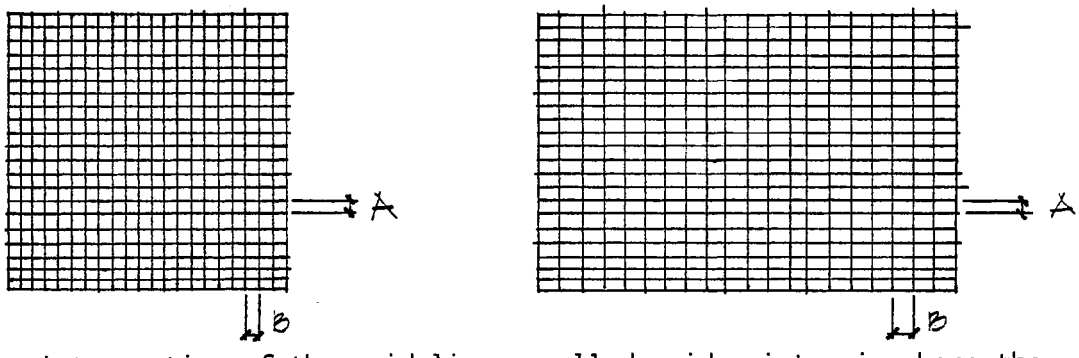
$$\frac{D}{A^2B^2}\begin{bmatrix} & \mu B^2 & \\ -A^2 & -2A^2-2B^2 & A^2 \\ & \mu B^2 & \end{bmatrix}.$$

Combined into the moment y operator,

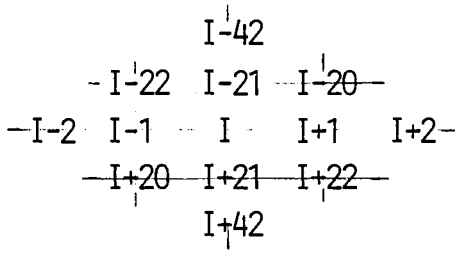
$$M_y = D\left[\frac{\partial^2 w}{\partial y^2} + \mu\frac{\partial^2 w}{\partial x^2}\right] =$$

$$\frac{D}{A^2B^2}\begin{bmatrix} & B^2 & \\ \mu A^2 & -2A^2-2B^2 & \mu A^2 \\ & B^2 & \end{bmatrix}.$$

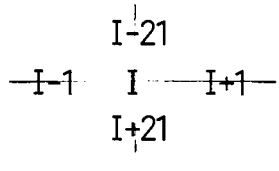
These operators are applied to a plate which has been divided into a 21 x 21 grid or 441 grid points. The grids are spaced equally along each side of the plate, therefore a plate that is not square will have unequal spacings for the grids on each side.



The intersection of the grid lines, called grid points, is where the operators are applied.



load operator



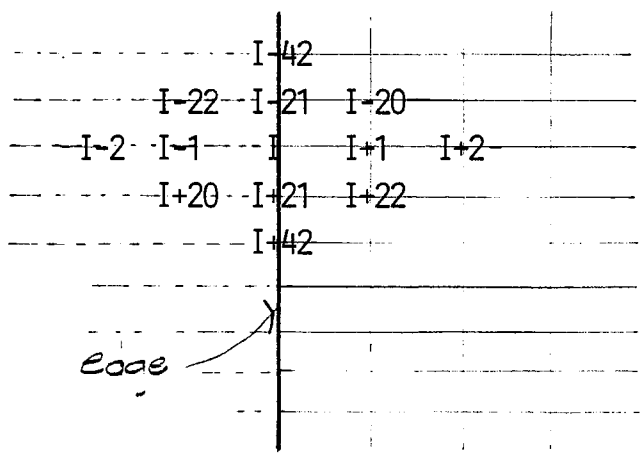
moment operator

Each grid point which is covered by the operator becomes part of an equation in a set of simultaneous equations used to determine deflections and moments respectively. For deflections the equation for a grid point in the interior portion of the plate ~~looks like~~ is:

$$P = \frac{D}{A^4B^4}\Big[(6B^4+8A^2B^2+6A^4)(g(I))+ (B^4)(g(I-2) + g(I+2)) - (4B^4+4A^2B^2)(g(I-21) + g(I-1) + g(I+1) + g(I+21)) + (2A^2B^2)(g(I-22) + g(I-20) + g(I+20) + g(I+22)) + (B^4)(g(I-42) + g(I+42))\Big]$$

The general equation for moments is very similar to the equation for deflections.

Points along the exterior edges have edge conditions which alter the operator values. Fixed and simple edge conditions are easy to deal with because of symmetry or antisymmetry at these edges.



fixed edge

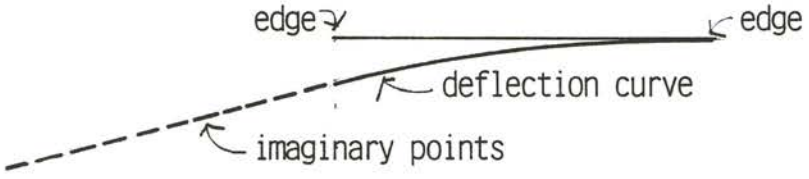
point I-2 = point I+2
point I-1 = point I+1
point I-22 = point I-20
point I+20 = point I+22

simple edge

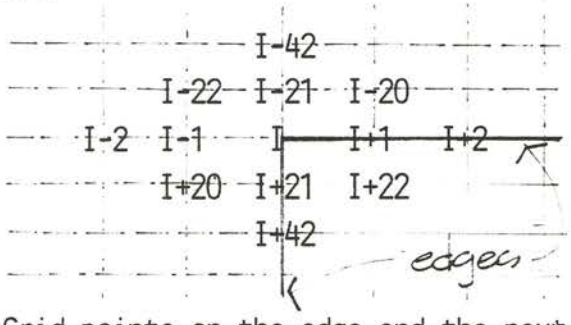
point I-2 = -(point I+2)
point I-1 = -(point I+1)
point I-22 = -(point I-20)
point I+20 = -(point I+22)

Free edges, however, are a different matter as symmetry can not be assumed to occur at the edge if only one edge is free or two edges that form a corner are free. The deflections of the imaginary points continue to increase as they get farther away from the edge. By inspection it is seen that, although the deflections continue to increase away from the edge,

they do so in a linear manner as there is no load outside the edge to cause a slope change in the deflection curve.



The deflections of the imaginary points are linearly related to the deflections of the edge points. For example, at a corner the relationships are

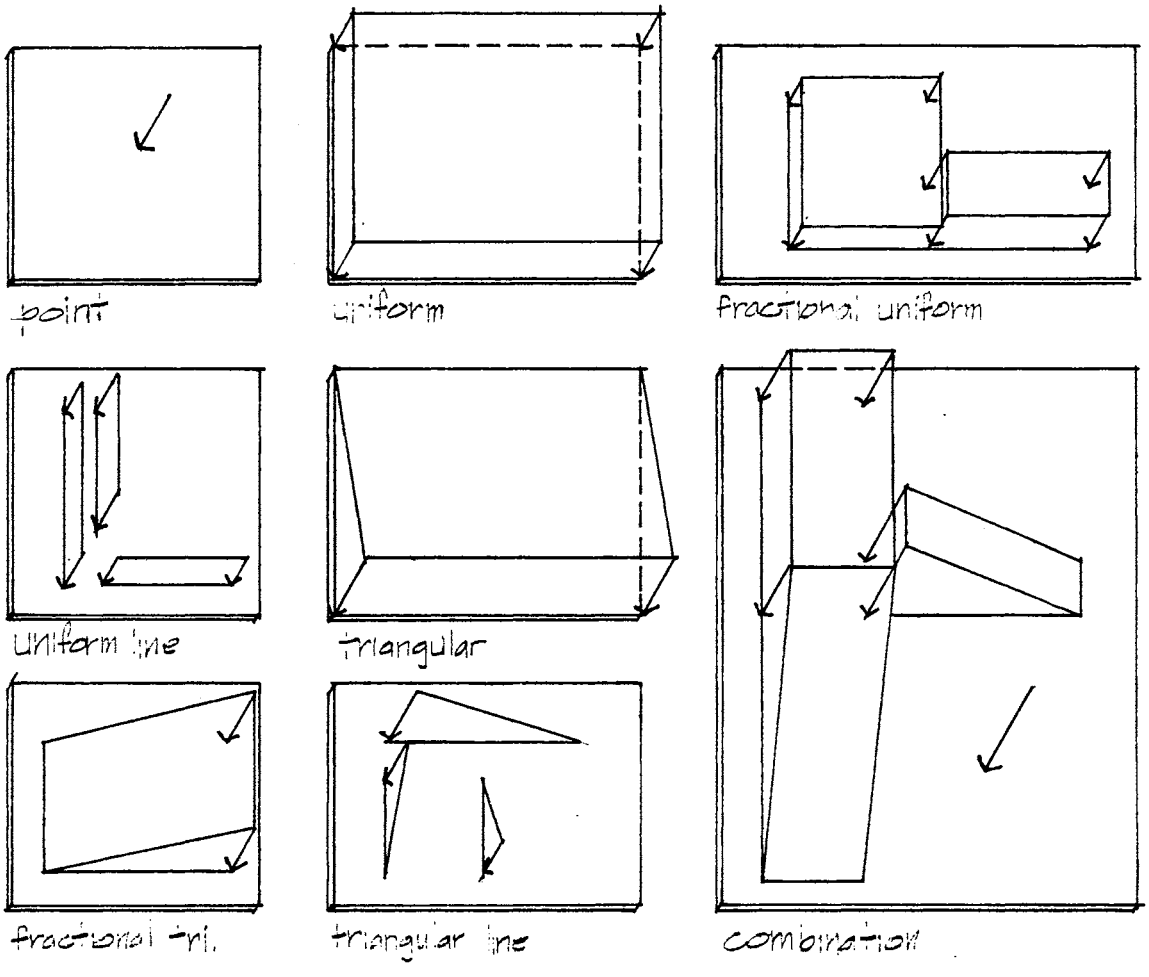


point I-42 = (22/20) point I
point I-2 = (22/20) point I
point I-22 = (21/20) point I
point I-21 = (21/20) point I
point I-1 = (21/20) point I
point I-20 = (21/20) point I+1
point I+20 = (21/20) point I+21.

Grid points on the edge and the next two rows from the edge ~~have to~~ must be checked for edge conditions in the deflection equations. For moments only the edge points need to be checked. The values of the operator at each grid point are placed into a matrix for bookkeeping purposes. The manipulation of these matrices will be explained later.

Because the solution deals with discrete points, the load applied to the plate needs to be replaced by an average intensity at each grid point. In this project, an attempt was made to allow the loadings to be somewhat general. However, to be feasible, loads had to be grouped into 3 categories: point loads, uniform loads and triangular loads. Point loads are concentrated loads applied to a very small area of the plate (dimensions have to be less than 1/20 of the height and width of the plate). Uniform loads are loads

which are constant over large areas of the plate. They can also be line loads and should be considered as such if one of the dimensions of the cover area is less than 1/20 of either the height or width respectively. Triangular loads are loads which change linearly from zero to some known magnitude. These loads can also be line loads with the same constraints on cover area as those for uniform loads.

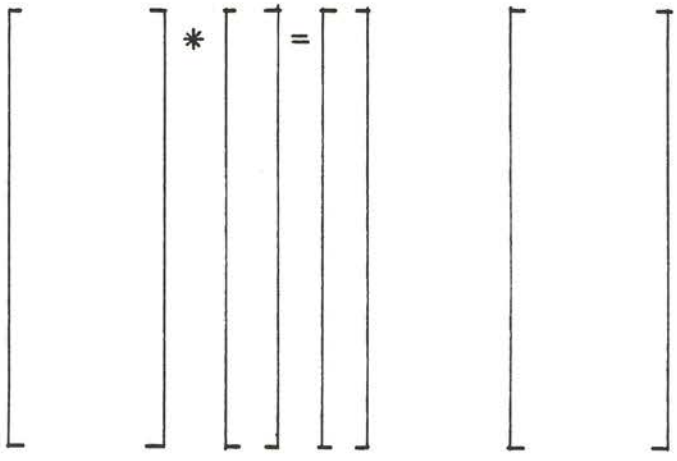


When all the loads are added together the intensity at each point is calculated, and these values are placed in a matrix for mathematical manipulation to calculate the deflections.

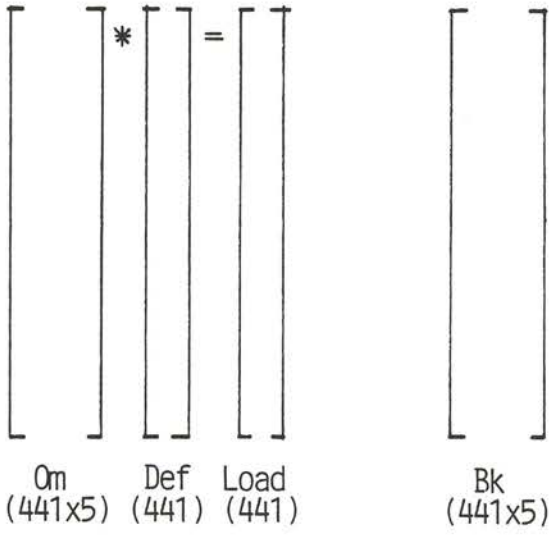
As stated earlier, matrices were employed to keep track of the massive amounts of information neccessary to calculate the deflections and moments needed for design. These matrices all have 441 rows (there are 441 grid

points). The load operator and load bookkeeping matrices have 50 columns, each, and the moment operator and moment bookkeeping matrices have 5 columns each. All other matrices have only 1 column each. The basic relationships in matrix form are

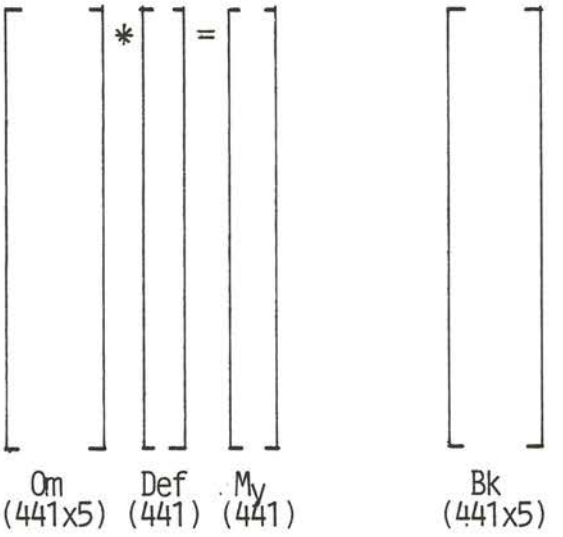
Deflections



Moments x



Moments y



where, Op -- load operator matrix
Def -- deflection matrix
Load -- load matrix
Om -- moment operator matrices
M_x, M_y -- moment matrices
Bk -- load operator bookkeeping matrix
Bm -- moment operator bookkeeping matrices

Bookkeeping schemes were required because of limited storage in the computer. This bookkeeping scheme hampers the speed of the program, but because of the storage problem, it was neccessary. Values of the operator at each point are stored in the operator matrices. The bookkeeping matrices are used to keep track of the points ~~these values belong to.~~ to which these values belong. An interior point's operator and bookeeping values would look like this for deflections.

col.==> 1 2 3 4 5 6

$$\text{Op(row I)}\left[\frac{1}{A^4},\ \frac{2}{A^2B^2},\ \frac{-4}{A^4}-\frac{4}{A^2B^2},\ \frac{2}{A^2B^2},\ \frac{1}{B^4},\ \frac{-4}{B^4}-\frac{4}{A^2B^2},\right.$$

col==> 7 8 9 10 11 12 13

$$\left.\frac{6}{A^4}+\frac{8}{A^2B^2}+\frac{6}{B^4},\ \frac{-4}{B^4}-\frac{4}{A^2B^2},\ \frac{1}{B^4},\ \frac{2}{A^2B^2},\ \frac{-4}{A^4}-\frac{4}{A^2B^2},\ \frac{2}{A^2B^2},\ \frac{1}{A^4}\right]$$

$$\begin{array}{l} \text{col==>} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ \text{Bk(row I)} \left[\text{I-42, I-22, I-21, I-20, I-2, I-1} \right. \\ \text{col==>} \quad 7 \quad 8 \quad 9 \quad 10 \quad 11 \quad 12 \quad 13 \\ \qquad\qquad \left. \text{I, I+1, I+2, I+20, I+21, I+22, I+42} \right] \end{array}$$

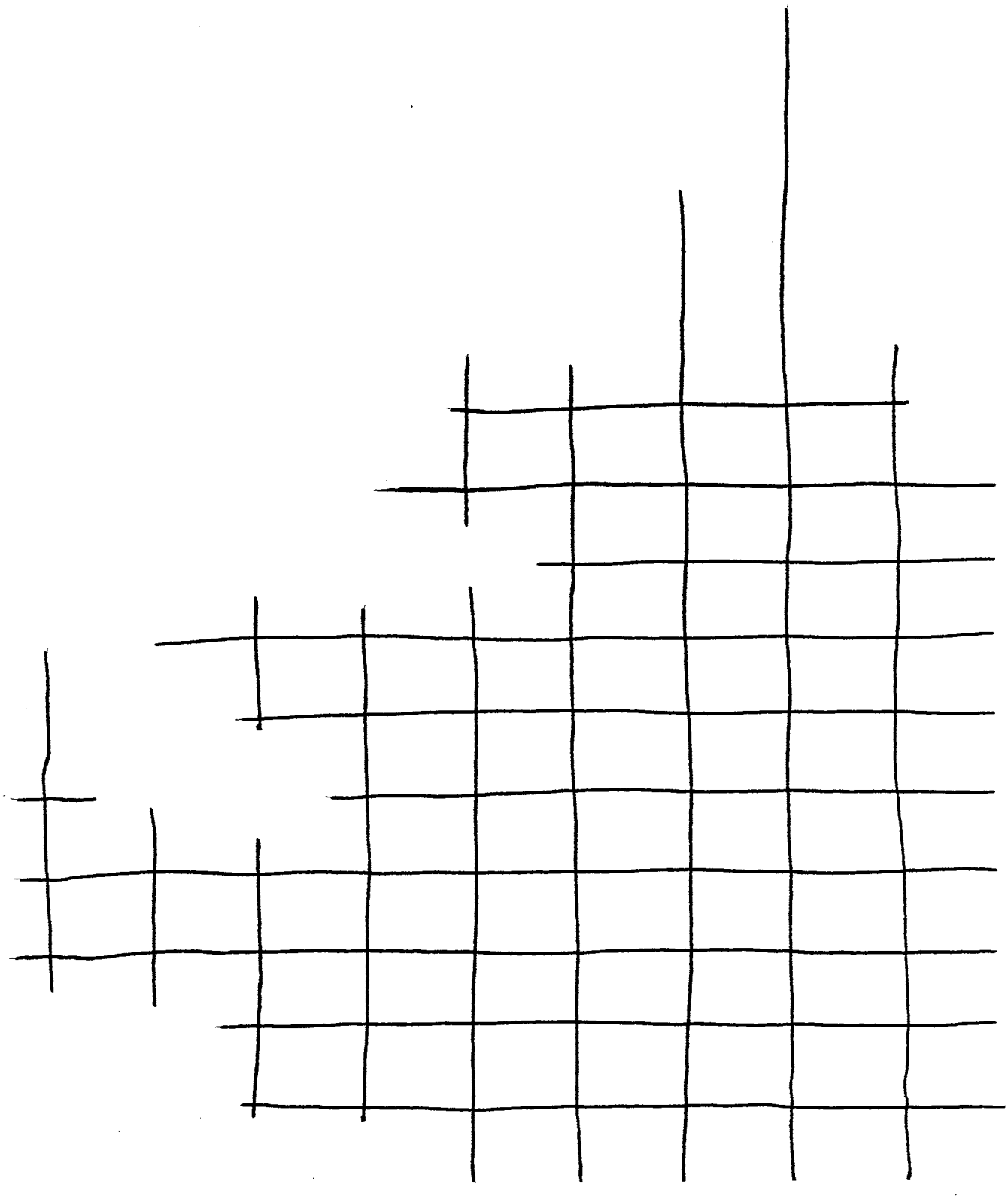
and like this for moments in the x direction

$$\begin{array}{l} \text{col==>} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \\ \text{Om (row I)} \left[\frac{\mu}{A^2}, \frac{1}{B^2}, -\frac{2}{B^2}\frac{2}{A^2}, \frac{1}{B^2}, \frac{\mu}{A^2} \right] \end{array}$$

$$\text{Bm(row I)} \left[\text{I-21, I-1, I, I+1, I+21} \right] .$$

To calculate deflections an adaption of Gauss' elimination was used to reduce the load operator into a "upper triangular" matrix and back substituting. The major portion of time used by the program is for the Gauss reduction routine because of ~~all~~ the many checks neccessary to keep track of information.

After the deflections have been calculated, the moments are found much easier and faster by using matrix multiplication. These moments are then used to design the reinforcing steel for the plate.



USER'S MANUAL

START UP

to load program type--

LOAD "PLATE:CS80,700,1"

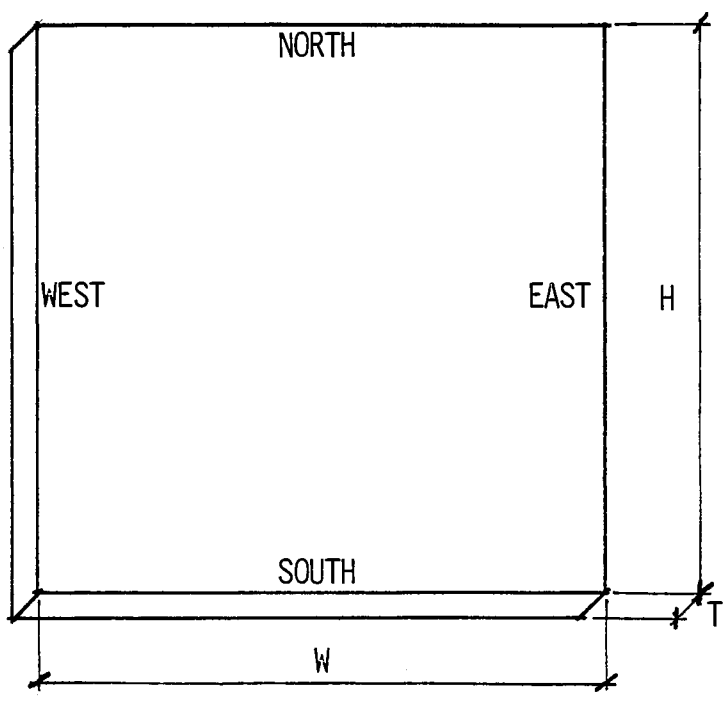
push execute
push run

INPUT

a prompt will appear whcih says--

"INPUT THE HEIGHT, WIDTH, AND THICKNESS OF THE PLATE (ft)"

type in the height, width and thickness
push continue



"INPUT THE MODULUS OF ELASTICITY AND POISSON'S RATIO OF THE PLATE(psi)"

type the modulus of elasticity in psi and the poisson's ratio of the plate
push continue .

"INPUT THE EDGE CONDITIONS--north, east, south, and west"

1 = fixed
2 = simple
3 = free

a fixed edge theoretically is a ridgidly built in edge which can not rotate or deflect

a simple edge is an edge which is not constrained in rotation but is in deflection

a free edge is not constrained in either rotation of deflection

input all edge conditions in the order prescribed
push continue

"INPUT NUMBER OF LOADS TO BE APPLIED"

input the number of different load conditions to be applied to the plate
push continue

"SELECT TYPE OF LOAD"

1. point load
2. uniform load
3. triangular load

a point load is a concentrated load applied on a portion of the plate which has dimensions that are less than H/20 x W/20

a uniform load is a load that is constant applied over a portion of the plate which has dimensions that are greater than H/20 x W/20. it can also be a line load and should be considered so if one of the dimensions is less than H/20 or W/20 respectively

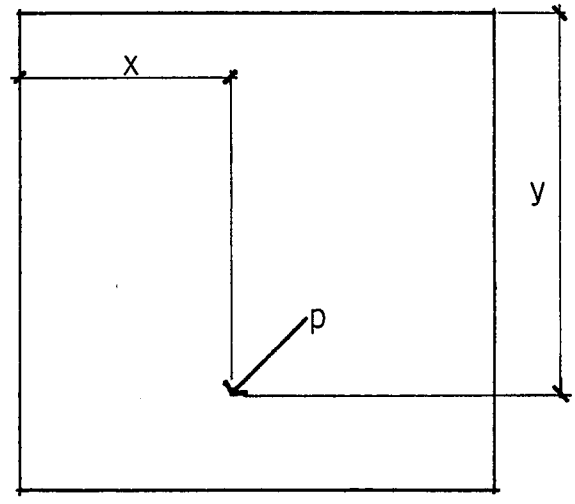
a triangular load is one which changes linearly from 0 to some known magnitude. if the dimensions of the load are such that one is less than H/20 or W/20 respectively, than it should be considered to be a line load

make a choice
push continue

POINT LOAD

"INPUT X, Y, FROM UPPER LEFT CORNER AND MAGNITUDE OF LOAD; (ft,k)"

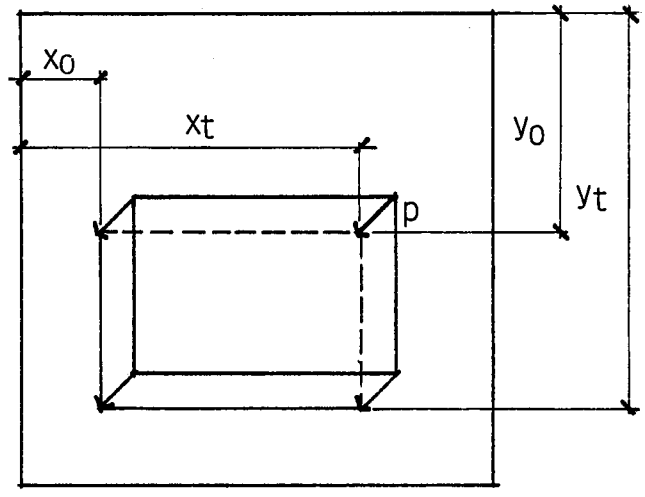
input x, y, p
push continue



UNIFORM LOAD

"INPUT STARTING POINT, ENDING POINT, AND MAGNITUDE OF LOAD; (ft,k)"

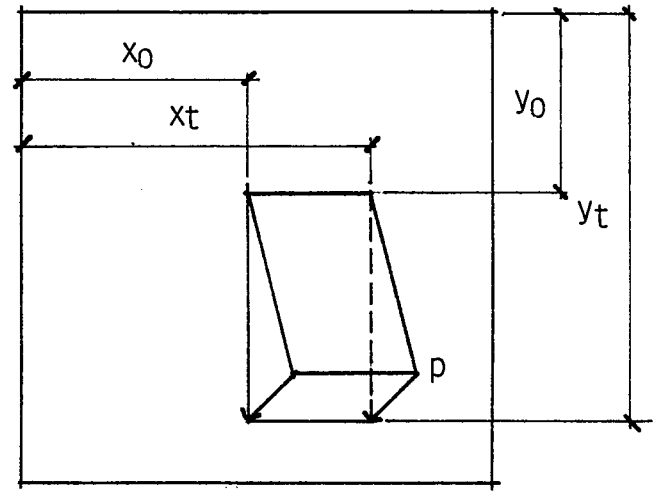
input x_o, y_o, x_t, y_t, p
push continue



TRIANGULAR LOAD

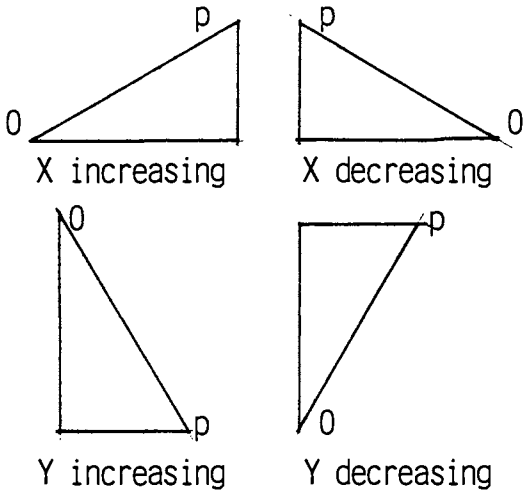
"INPUT STARTING POINT, ENDING POINT, AND MAGNITUDE OF LOAD; (ft,k)"

input x_o, y_o, x_t, y_t, p
push continue



"INPUT DIRECTION"

1. X increasing
2. X decreasing
3. Y increasing
4. Y decreasing



DATA ECHO

"WOULD YOU LIKE A HARD COPY?"

1 = YES
0 = NO

(a "hard copy" is a print out by the printer)

choose
push continue

"IS EVERYTHING CORRECT?"

1 = YES
0 = NO

if corrections need to be made ~~than~~ choose 0. if not, choose 1 and you will be given another chance to get a "hard copy" of the data echo

OUTPUT DATA

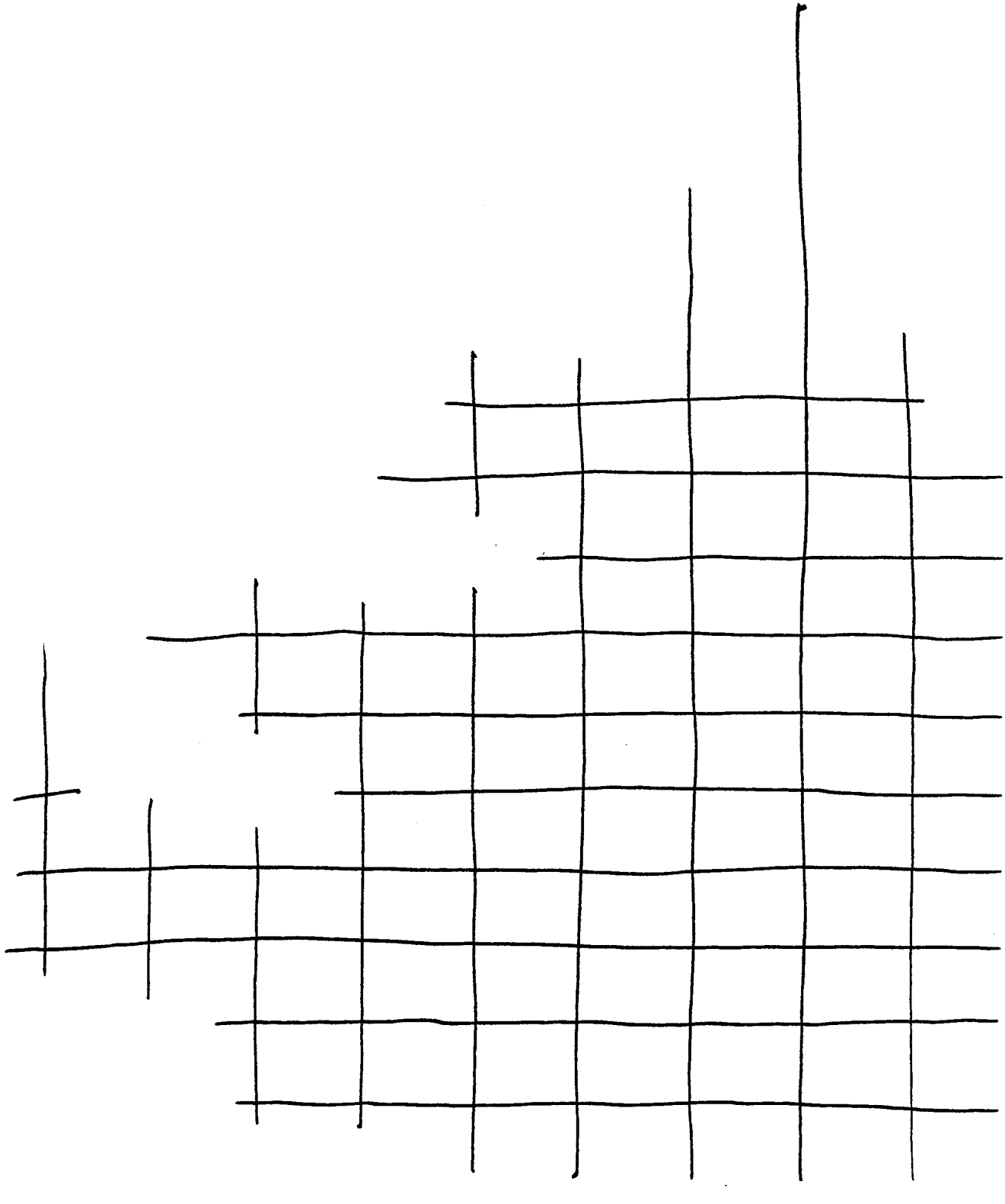
"PROJECT NAME?"

type name of project
push continue

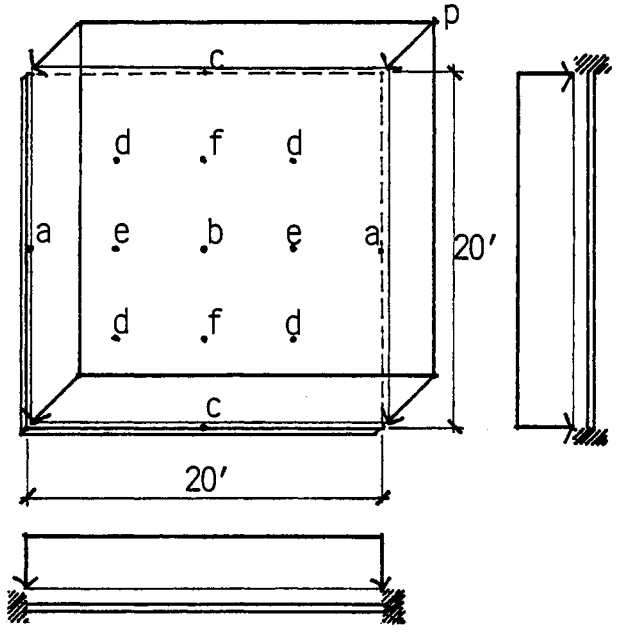
"WHAT IS TODAY'S DATE?"

type today's date. ex. DECEMBER 20 1985 (no comma)
push continue

the output gives moments in x and y directions and the deflections for each point on the plate



FIRST EXAMPLE



20′ x 20′ plate
4 fixed edges
p = .144 ksf

POINTS	PROGRAM POINT #	COEFFICIENTS X	COEFFICIENTS Y	MOMENTS(ft-k) X	MOMENTS(ft-k) Y
a	211,231	.05	.01	2.882	.576
b	221	-.0213	-.0213	-1.227	-1.227
c	11,431	.01	.05	.576	2.882
d	111,121,321,331	-.0143	-.0143	- .822	- .822
e	216,226	-.0134	-.0118	- .769	- .677
f	116,326	-.0118	-.0134	- .677	- .769

$$M = (coeff)(p)(a^2)$$
$$= (coeff)(57.6)$$

ref. Moments and Reactions for Rectangular Plates
Engineering Monograph, #27, p. 40
W. T. Moody

PLATE DATA ECHO

HEIGHT	20.00 FT
WIDTH	20.00 FT
THICKNESS	.50 FT

MODULUS OF ELASTICITY	4.07E+03 KSI
POISSON'S RATIO	.20

EDGE SUPPORT CONDITIONS

NORTH EDGE	FIXED
EAST EDGE	FIXED
SOUTH EDGE	FIXED
WEST EDGE	FIXED

LOAD DATA

NUMBER OF LOADS= 1

LOAD 1

UNIFORM LOAD

STARTING POINT (FT)		ENDING POINT (FT)		MAGNITUDE (KSF,K/F)
Xo	Yo	Xt	Yt	
0.00	0.00	20.00	20.00	1.44E-01

DECEMBER 18 1985

POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
1	0.00	0.00	0.00E+00	0.00E+00	0.00E+00
2	1.00	0.00	0.00E+00	2.80E-02	1.39E-01
3	2.00	0.00	0.00E+00	9.90E-02	4.90E-01
4	3.00	0.00	0.00E+00	1.90E-01	9.41E-01
5	4.00	0.00	0.00E+00	2.84E-01	1.41E+00
6	5.00	0.00	0.00E+00	3.73E-01	1.84E+00
7	6.00	0.00	0.00E+00	4.49E-01	2.22E+00
8	7.00	0.00	0.00E+00	5.09E-01	2.52E+00
9	8.00	0.00	0.00E+00	5.54E-01	2.74E+00
10	9.00	0.00	0.00E+00	5.80E-01	2.87E+00
11	10.00	0.00	0.00E+00	5.89E-01	2.92E+00
12	11.00	0.00	0.00E+00	5.80E-01	2.87E+00
13	12.00	0.00	0.00E+00	5.54E-01	2.74E+00
14	13.00	0.00	0.00E+00	5.09E-01	2.52E+00
15	14.00	0.00	0.00E+00	4.49E-01	2.22E+00
16	15.00	0.00	0.00E+00	3.73E-01	1.84E+00
17	16.00	0.00	0.00E+00	2.84E-01	1.41E+00
18	17.00	0.00	0.00E+00	1.90E-01	9.41E-01
19	18.00	0.00	0.00E+00	9.90E-02	4.90E-01
20	19.00	0.00	0.00E+00	2.80E-02	1.39E-01
21	20.00	0.00	0.00E+00	0.00E+00	0.00E+00
22	0.00	1.00	0.00E+00	1.39E-01	2.80E-02
23	1.00	1.00	1.31E-04	1.28E-01	1.28E-01
24	2.00	1.00	4.62E-04	1.12E-01	3.20E-01
25	3.00	1.00	8.86E-04	1.23E-01	5.68E-01
26	4.00	1.00	1.33E-03	1.54E-01	8.39E-01
27	5.00	1.00	1.74E-03	1.94E-01	1.10E+00
28	6.00	1.00	2.09E-03	2.35E-01	1.34E+00
29	7.00	1.00	2.38E-03	2.71E-01	1.54E+00
30	8.00	1.00	2.58E-03	2.99E-01	1.68E+00
31	9.00	1.00	2.71E-03	3.16E-01	1.77E+00
32	10.00	1.00	2.75E-03	3.22E-01	1.80E+00
33	11.00	1.00	2.71E-03	3.16E-01	1.77E+00
34	12.00	1.00	2.58E-03	2.99E-01	1.68E+00
35	13.00	1.00	2.38E-03	2.71E-01	1.54E+00
36	14.00	1.00	2.09E-03	2.35E-01	1.34E+00
37	15.00	1.00	1.74E-03	1.94E-01	1.10E+00
38	16.00	1.00	1.33E-03	1.54E-01	8.39E-01
39	17.00	1.00	8.86E-04	1.23E-01	5.68E-01
40	18.00	1.00	4.62E-04	1.12E-01	3.20E-01
41	19.00	1.00	1.31E-04	1.28E-01	1.28E-01
42	20.00	1.00	0.00E+00	1.39E-01	2.80E-02

FIRST EXAMPLE 20' x 20'
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
43	0.00	2.00	0.00E+00	4.90E-01	9.90E-02
44	1.00	2.00	4.62E-04	3.20E-01	1.12E-01
45	2.00	2.00	1.51E-03	1.82E-01	1.82E-01
46	3.00	2.00	2.84E-03	9.35E-02	2.90E-01
47	4.00	2.00	4.24E-03	4.62E-02	4.18E-01
48	5.00	2.00	5.56E-03	2.73E-02	5.52E-01
49	6.00	2.00	6.72E-03	2.50E-02	6.79E-01
50	7.00	2.00	7.66E-03	3.07E-02	7.87E-01
51	8.00	2.00	8.35E-03	3.85E-02	8.70E-01
52	9.00	2.00	8.77E-03	4.46E-02	9.21E-01
53	10.00	2.00	8.91E-03	4.68E-02	9.39E-01
54	11.00	2.00	8.77E-03	4.46E-02	9.21E-01
55	12.00	2.00	8.35E-03	3.85E-02	8.70E-01
56	13.00	2.00	7.66E-03	3.07E-02	7.87E-01
57	14.00	2.00	6.72E-03	2.50E-02	6.79E-01
58	15.00	2.00	5.56E-03	2.73E-02	5.52E-01
59	16.00	2.00	4.24E-03	4.62E-02	4.18E-01
60	17.00	2.00	2.84E-03	9.35E-02	2.90E-01
61	18.00	2.00	1.51E-03	1.82E-01	1.82E-01
62	19.00	2.00	4.62E-04	3.20E-01	1.12E-01
63	20.00	2.00	0.00E+00	4.90E-01	9.90E-02
64	0.00	3.00	0.00E+00	9.41E-01	1.90E-01
65	1.00	3.00	8.86E-04	5.68E-01	1.23E-01
66	2.00	3.00	2.84E-03	2.90E-01	9.35E-02
67	3.00	3.00	5.32E-03	9.28E-02	9.28E-02
68	4.00	3.00	7.95E-03	-3.86E-02	1.13E-01
69	5.00	3.00	1.05E-02	-1.21E-01	1.46E-01
70	6.00	3.00	1.27E-02	-1.71E-01	1.85E-01
71	7.00	3.00	1.45E-02	-1.98E-01	2.22E-01
72	8.00	3.00	1.58E-02	-2.12E-01	2.53E-01
73	9.00	3.00	1.66E-02	-2.19E-01	2.73E-01
74	10.00	3.00	1.69E-02	-2.21E-01	2.80E-01
75	11.00	3.00	1.66E-02	-2.19E-01	2.73E-01
76	12.00	3.00	1.58E-02	-2.12E-01	2.53E-01
77	13.00	3.00	1.45E-02	-1.98E-01	2.22E-01
78	14.00	3.00	1.27E-02	-1.71E-01	1.85E-01
79	15.00	3.00	1.05E-02	-1.21E-01	1.46E-01
80	16.00	3.00	7.95E-03	-3.86E-02	1.13E-01
81	17.00	3.00	5.32E-03	9.28E-02	9.28E-02
82	18.00	3.00	2.84E-03	2.90E-01	9.35E-02
83	19.00	3.00	8.86E-04	5.68E-01	1.23E-01
84	20.00	3.00	0.00E+00	9.41E-01	1.90E-01

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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
85	0.00	4.00	0.00E+00	1.41E+00	2.84E-01
86	1.00	4.00	1.33E-03	8.39E-01	1.54E-01
87	2.00	4.00	4.24E-03	4.18E-01	4.62E-02
88	3.00	4.00	7.95E-03	1.13E-01	-3.86E-02
89	4.00	4.00	1.19E-02	-1.02E-01	-1.02E-01
90	5.00	4.00	1.57E-02	-2.49E-01	-1.47E-01
91	6.00	4.00	1.91E-02	-3.46E-01	-1.77E-01
92	7.00	4.00	2.18E-02	-4.07E-01	-1.96E-01
93	8.00	4.00	2.39E-02	-4.44E-01	-2.07E-01
94	9.00	4.00	2.51E-02	-4.63E-01	-2.13E-01
95	10.00	4.00	2.55E-02	-4.69E-01	-2.14E-01
96	11.00	4.00	2.51E-02	-4.63E-01	-2.13E-01
97	12.00	4.00	2.39E-02	-4.44E-01	-2.07E-01
98	13.00	4.00	2.18E-02	-4.07E-01	-1.96E-01
99	14.00	4.00	1.91E-02	-3.46E-01	-1.77E-01
100	15.00	4.00	1.57E-02	-2.49E-01	-1.47E-01
101	16.00	4.00	1.19E-02	-1.02E-01	-1.02E-01
102	17.00	4.00	7.95E-03	1.13E-01	-3.86E-02
103	18.00	4.00	4.24E-03	4.18E-01	4.62E-02
104	19.00	4.00	1.33E-03	8.39E-01	1.54E-01
105	20.00	4.00	0.00E+00	1.41E+00	2.84E-01
106	0.00	5.00	0.00E+00	1.84E+00	3.73E-01
107	1.00	5.00	1.74E-03	1.10E+00	1.94E-01
108	2.00	5.00	5.56E-03	5.52E-01	2.73E-02
109	3.00	5.00	1.05E-02	1.46E-01	-1.21E-01
110	4.00	5.00	1.57E-02	-1.47E-01	-2.49E-01
111	5.00	5.00	2.07E-02	-3.54E-01	-3.54E-01
112	6.00	5.00	2.52E-02	-4.96E-01	-4.37E-01
113	7.00	5.00	2.89E-02	-5.90E-01	-5.00E-01
114	8.00	5.00	3.17E-02	-6.49E-01	-5.44E-01
115	9.00	5.00	3.33E-02	-6.80E-01	-5.70E-01
116	10.00	5.00	3.39E-02	-6.90E-01	-5.78E-01
117	11.00	5.00	3.33E-02	-6.80E-01	-5.70E-01
118	12.00	5.00	3.17E-02	-6.49E-01	-5.44E-01
119	13.00	5.00	2.89E-02	-5.90E-01	-5.00E-01
120	14.00	5.00	2.52E-02	-4.96E-01	-4.37E-01
121	15.00	5.00	2.07E-02	-3.54E-01	-3.54E-01
122	16.00	5.00	1.57E-02	-1.47E-01	-2.49E-01
123	17.00	5.00	1.05E-02	1.46E-01	-1.21E-01
124	18.00	5.00	5.56E-03	5.52E-01	2.73E-02
125	19.00	5.00	1.74E-03	1.10E+00	1.94E-01
126	20.00	5.00	0.00E+00	1.84E+00	3.73E-01

FIRST EXAMPLE 20' x 20'
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
127	0.00	6.00	0.00E+00	2.22E+00	4.49E-01
128	1.00	6.00	2.09E-03	1.34E+00	2.35E-01
129	2.00	6.00	6.72E-03	6.79E-01	2.50E-02
130	3.00	6.00	1.27E-02	1.85E-01	-1.71E-01
131	4.00	6.00	1.91E-02	-1.77E-01	-3.46E-01
132	5.00	6.00	2.52E-02	-4.37E-01	-4.96E-01
133	6.00	6.00	3.08E-02	-6.20E-01	-6.20E-01
134	7.00	6.00	3.53E-02	-7.43E-01	-7.16E-01
135	8.00	6.00	3.87E-02	-8.21E-01	-7.85E-01
136	9.00	6.00	4.07E-02	-8.64E-01	-8.26E-01
137	10.00	6.00	4.14E-02	-8.78E-01	-8.39E-01
138	11.00	6.00	4.07E-02	-8.64E-01	-8.26E-01
139	12.00	6.00	3.87E-02	-8.21E-01	-7.85E-01
140	13.00	6.00	3.53E-02	-7.43E-01	-7.16E-01
141	14.00	6.00	3.08E-02	-6.20E-01	-6.20E-01
142	15.00	6.00	2.52E-02	-4.37E-01	-4.96E-01
143	16.00	6.00	1.91E-02	-1.77E-01	-3.46E-01
144	17.00	6.00	1.27E-02	1.85E-01	-1.71E-01
145	18.00	6.00	6.72E-03	6.79E-01	2.50E-02
146	19.00	6.00	2.09E-03	1.34E+00	2.35E-01
147	20.00	6.00	0.00E+00	2.22E+00	4.49E-01
148	0.00	7.00	0.00E+00	2.52E+00	5.09E-01
149	1.00	7.00	2.38E-03	1.54E+00	2.71E-01
150	2.00	7.00	7.66E-03	7.87E-01	3.07E-02
151	3.00	7.00	1.45E-02	2.22E-01	-1.98E-01
152	4.00	7.00	2.18E-02	-1.96E-01	-4.07E-01
153	5.00	7.00	2.89E-02	-5.00E-01	-5.90E-01
154	6.00	7.00	3.53E-02	-7.16E-01	-7.43E-01
155	7.00	7.00	4.05E-02	-8.64E-01	-8.64E-01
156	8.00	7.00	4.44E-02	-9.58E-01	-9.50E-01
157	9.00	7.00	4.68E-02	-1.01E+00	-1.00E+00
158	10.00	7.00	4.76E-02	-1.03E+00	-1.02E+00
159	11.00	7.00	4.68E-02	-1.01E+00	-1.00E+00
160	12.00	7.00	4.44E-02	-9.58E-01	-9.50E-01
161	13.00	7.00	4.05E-02	-8.64E-01	-8.64E-01
162	14.00	7.00	3.53E-02	-7.16E-01	-7.43E-01
163	15.00	7.00	2.89E-02	-5.00E-01	-5.90E-01
164	16.00	7.00	2.18E-02	-1.96E-01	-4.07E-01
165	17.00	7.00	1.45E-02	2.22E-01	-1.98E-01
166	18.00	7.00	7.66E-03	7.87E-01	3.07E-02
167	19.00	7.00	2.38E-03	1.54E+00	2.71E-01
168	20.00	7.00	0.00E+00	2.52E+00	5.09E-01

FIRST EXAMPLE 20' x 20'
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
169	0.00	8.00	0.00E+00	2.74E+00	5.54E-01
170	1.00	8.00	2.58E-03	1.68E+00	2.99E-01
171	2.00	8.00	8.35E-03	8.70E-01	3.85E-02
172	3.00	8.00	1.58E-02	2.53E-01	-2.12E-01
173	4.00	8.00	2.39E-02	-2.07E-01	-4.44E-01
174	5.00	8.00	3.17E-02	-5.44E-01	-6.49E-01
175	6.00	8.00	3.87E-02	-7.85E-01	-8.21E-01
176	7.00	8.00	4.44E-02	-9.50E-01	-9.58E-01
177	8.00	8.00	4.87E-02	-1.06E+00	-1.06E+00
178	9.00	8.00	5.14E-02	-1.12E+00	-1.12E+00
179	10.00	8.00	5.23E-02	-1.14E+00	-1.14E+00
180	11.00	8.00	5.14E-02	-1.12E+00	-1.12E+00
181	12.00	8.00	4.87E-02	-1.06E+00	-1.06E+00
182	13.00	8.00	4.44E-02	-9.50E-01	-9.58E-01
183	14.00	8.00	3.87E-02	-7.85E-01	-8.21E-01
184	15.00	8.00	3.17E-02	-5.44E-01	-6.49E-01
185	16.00	8.00	2.39E-02	-2.07E-01	-4.44E-01
186	17.00	8.00	1.58E-02	2.53E-01	-2.12E-01
187	18.00	8.00	8.35E-03	8.70E-01	3.85E-02
188	19.00	8.00	2.58E-03	1.68E+00	2.99E-01
189	20.00	8.00	0.00E+00	2.74E+00	5.54E-01
190	0.00	9.00	0.00E+00	2.87E+00	5.80E-01
191	1.00	9.00	2.71E-03	1.77E+00	3.16E-01
192	2.00	9.00	8.77E-03	9.21E-01	4.46E-02
193	3.00	9.00	1.66E-02	2.73E-01	-2.19E-01
194	4.00	9.00	2.51E-02	-2.13E-01	-4.63E-01
195	5.00	9.00	3.33E-02	-5.70E-01	-6.80E-01
196	6.00	9.00	4.07E-02	-8.26E-01	-8.64E-01
197	7.00	9.00	4.68E-02	-1.00E+00	-1.01E+00
198	8.00	9.00	5.14E-02	-1.12E+00	-1.12E+00
199	9.00	9.00	5.42E-02	-1.18E+00	-1.18E+00
200	10.00	9.00	5.51E-02	-1.20E+00	-1.20E+00
201	11.00	9.00	5.42E-02	-1.18E+00	-1.18E+00
202	12.00	9.00	5.14E-02	-1.12E+00	-1.12E+00
203	13.00	9.00	4.68E-02	-1.00E+00	-1.01E+00
204	14.00	9.00	4.07E-02	-8.26E-01	-8.64E-01
205	15.00	9.00	3.33E-02	-5.70E-01	-6.80E-01
206	16.00	9.00	2.51E-02	-2.13E-01	-4.63E-01
207	17.00	9.00	1.66E-02	2.73E-01	-2.19E-01
208	18.00	9.00	8.77E-03	9.21E-01	4.46E-02
209	19.00	9.00	2.71E-03	1.77E+00	3.16E-01
210	20.00	9.00	0.00E+00	2.87E+00	5.80E-01

FIRST EXAMPLE 20' x 20'
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
211	0.00	10.00	0.00E+00	2.92E+00	5.89E-01
212	1.00	10.00	2.75E-03	1.80E+00	3.22E-01
213	2.00	10.00	8.91E-03	9.39E-01	4.68E-02
214	3.00	10.00	1.69E-02	2.80E-01	-2.21E-01
215	4.00	10.00	2.55E-02	-2.14E-01	-4.69E-01
216	5.00	10.00	3.39E-02	-5.78E-01	-6.90E-01
217	6.00	10.00	4.14E-02	-8.39E-01	-8.78E-01
218	7.00	10.00	4.76E-02	-1.02E+00	-1.03E+00
219	8.00	10.00	5.23E-02	-1.14E+00	-1.14E+00
220	9.00	10.00	5.51E-02	-1.20E+00	-1.20E+00
221	10.00	10.00	5.61E-02	-1.22E+00	-1.22E+00
222	11.00	10.00	5.51E-02	-1.20E+00	-1.20E+00
223	12.00	10.00	5.23E-02	-1.14E+00	-1.14E+00
224	13.00	10.00	4.76E-02	-1.02E+00	-1.03E+00
225	14.00	10.00	4.14E-02	-8.39E-01	-8.78E-01
226	15.00	10.00	3.39E-02	-5.78E-01	-6.90E-01
227	16.00	10.00	2.55E-02	-2.14E-01	-4.69E-01
228	17.00	10.00	1.69E-02	2.80E-01	-2.21E-01
229	18.00	10.00	8.91E-03	9.39E-01	4.68E-02
230	19.00	10.00	2.75E-03	1.80E+00	3.22E-01
231	20.00	10.00	0.00E+00	2.92E+00	5.89E-01
232	0.00	11.00	0.00E+00	2.87E+00	5.80E-01
233	1.00	11.00	2.71E-03	1.77E+00	3.16E-01
234	2.00	11.00	8.77E-03	9.21E-01	4.46E-02
235	3.00	11.00	1.66E-02	2.73E-01	-2.19E-01
236	4.00	11.00	2.51E-02	-2.13E-01	-4.63E-01
237	5.00	11.00	3.33E-02	-5.70E-01	-6.80E-01
238	6.00	11.00	4.07E-02	-8.26E-01	-8.64E-01
239	7.00	11.00	4.68E-02	-1.00E+00	-1.01E+00
240	8.00	11.00	5.14E-02	-1.12E+00	-1.12E+00
241	9.00	11.00	5.42E-02	-1.18E+00	-1.18E+00
242	10.00	11.00	5.51E-02	-1.20E+00	-1.20E+00
243	11.00	11.00	5.42E-02	-1.18E+00	-1.18E+00
244	12.00	11.00	5.14E-02	-1.12E+00	-1.12E+00
245	13.00	11.00	4.68E-02	-1.00E+00	-1.01E+00
246	14.00	11.00	4.07E-02	-8.26E-01	-8.64E-01
247	15.00	11.00	3.33E-02	-5.70E-01	-6.80E-01
248	16.00	11.00	2.51E-02	-2.13E-01	-4.63E-01
249	17.00	11.00	1.66E-02	2.73E-01	-2.19E-01
250	18.00	11.00	8.77E-03	9.21E-01	4.46E-02
251	19.00	11.00	2.71E-03	1.77E+00	3.16E-01
252	20.00	11.00	0.00E+00	2.87E+00	5.80E-01

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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
253	0.00	12.00	0.00E+00	2.74E+00	5.54E-01
254	1.00	12.00	2.58E-03	1.68E+00	2.99E-01
255	2.00	12.00	8.35E-03	8.70E-01	3.85E-02
256	3.00	12.00	1.58E-02	2.53E-01	-2.12E-01
257	4.00	12.00	2.39E-02	-2.07E-01	-4.44E-01
258	5.00	12.00	3.17E-02	-5.44E-01	-6.49E-01
259	6.00	12.00	3.87E-02	-7.85E-01	-8.21E-01
260	7.00	12.00	4.44E-02	-9.50E-01	-9.58E-01
261	8.00	12.00	4.87E-02	-1.06E+00	-1.06E+00
262	9.00	12.00	5.14E-02	-1.12E+00	-1.12E+00
263	10.00	12.00	5.23E-02	-1.14E+00	-1.14E+00
264	11.00	12.00	5.14E-02	-1.12E+00	-1.12E+00
265	12.00	12.00	4.87E-02	-1.06E+00	-1.06E+00
266	13.00	12.00	4.44E-02	-9.50E-01	-9.58E-01
267	14.00	12.00	3.87E-02	-7.85E-01	-8.21E-01
268	15.00	12.00	3.17E-02	-5.44E-01	-6.49E-01
269	16.00	12.00	2.39E-02	-2.07E-01	-4.44E-01
270	17.00	12.00	1.58E-02	2.53E-01	-2.12E-01
271	18.00	12.00	8.35E-03	8.70E-01	3.85E-02
272	19.00	12.00	2.58E-03	1.68E+00	2.99E-01
273	20.00	12.00	0.00E+00	2.74E+00	5.54E-01
274	0.00	13.00	0.00E+00	2.52E+00	5.09E-01
275	1.00	13.00	2.38E-03	1.54E+00	2.71E-01
276	2.00	13.00	7.66E-03	7.87E-01	3.07E-02
277	3.00	13.00	1.45E-02	2.22E-01	-1.98E-01
278	4.00	13.00	2.18E-02	-1.96E-01	-4.07E-01
279	5.00	13.00	2.89E-02	-5.00E-01	-5.90E-01
280	6.00	13.00	3.53E-02	-7.16E-01	-7.43E-01
281	7.00	13.00	4.05E-02	-8.64E-01	-8.64E-01
282	8.00	13.00	4.44E-02	-9.58E-01	-9.50E-01
283	9.00	13.00	4.68E-02	-1.01E+00	-1.00E+00
284	10.00	13.00	4.76E-02	-1.03E+00	-1.02E+00
285	11.00	13.00	4.68E-02	-1.01E+00	-1.00E+00
286	12.00	13.00	4.44E-02	-9.58E-01	-9.50E-01
287	13.00	13.00	4.05E-02	-8.64E-01	-8.64E-01
288	14.00	13.00	3.53E-02	-7.16E-01	-7.43E-01
289	15.00	13.00	2.89E-02	-5.00E-01	-5.90E-01
290	16.00	13.00	2.18E-02	-1.96E-01	-4.07E-01
291	17.00	13.00	1.45E-02	2.22E-01	-1.98E-01
292	18.00	13.00	7.66E-03	7.87E-01	3.07E-02
293	19.00	13.00	2.38E-03	1.54E+00	2.71E-01
294	20.00	13.00	0.00E+00	2.52E+00	5.09E-01

FIRST EXAMPLE 20' x 20' PAGE 8
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
295	0.00	14.00	0.00E+00	2.22E+00	4.49E-01
296	1.00	14.00	2.09E-03	1.34E+00	2.35E-01
297	2.00	14.00	6.72E-03	6.79E-01	2.50E-02
298	3.00	14.00	1.27E-02	1.85E-01	-1.71E-01
299	4.00	14.00	1.91E-02	-1.77E-01	-3.46E-01
300	5.00	14.00	2.52E-02	-4.37E-01	-4.96E-01
301	6.00	14.00	3.08E-02	-6.20E-01	-6.20E-01
302	7.00	14.00	3.53E-02	-7.43E-01	-7.16E-01
303	8.00	14.00	3.87E-02	-8.21E-01	-7.85E-01
304	9.00	14.00	4.07E-02	-8.64E-01	-8.26E-01
305	10.00	14.00	4.14E-02	-8.78E-01	-8.39E-01
306	11.00	14.00	4.07E-02	-8.64E-01	-8.26E-01
307	12.00	14.00	3.87E-02	-8.21E-01	-7.85E-01
308	13.00	14.00	3.53E-02	-7.43E-01	-7.16E-01
309	14.00	14.00	3.08E-02	-6.20E-01	-6.20E-01
310	15.00	14.00	2.52E-02	-4.37E-01	-4.96E-01
311	16.00	14.00	1.91E-02	-1.77E-01	-3.46E-01
312	17.00	14.00	1.27E-02	1.85E-01	-1.71E-01
313	18.00	14.00	6.72E-03	6.79E-01	2.50E-02
314	19.00	14.00	2.09E-03	1.34E+00	2.35E-01
315	20.00	14.00	0.00E+00	2.22E+00	4.49E-01
316	0.00	15.00	0.00E+00	1.84E+00	3.73E-01
317	1.00	15.00	1.74E-03	1.10E+00	1.94E-01
318	2.00	15.00	5.56E-03	5.52E-01	2.73E-02
319	3.00	15.00	1.05E-02	1.46E-01	-1.21E-01
320	4.00	15.00	1.57E-02	-1.47E-01	-2.49E-01
321	5.00	15.00	2.07E-02	-3.54E-01	-3.54E-01
322	6.00	15.00	2.52E-02	-4.96E-01	-4.37E-01
323	7.00	15.00	2.89E-02	-5.90E-01	-5.00E-01
324	8.00	15.00	3.17E-02	-6.49E-01	-5.44E-01
325	9.00	15.00	3.33E-02	-6.80E-01	-5.70E-01
326	10.00	15.00	3.39E-02	-6.90E-01	-5.78E-01
327	11.00	15.00	3.33E-02	-6.80E-01	-5.70E-01
328	12.00	15.00	3.17E-02	-6.49E-01	-5.44E-01
329	13.00	15.00	2.89E-02	-5.90E-01	-5.00E-01
330	14.00	15.00	2.52E-02	-4.96E-01	-4.37E-01
331	15.00	15.00	2.07E-02	-3.54E-01	-3.54E-01
332	16.00	15.00	1.57E-02	-1.47E-01	-2.49E-01
333	17.00	15.00	1.05E-02	1.46E-01	-1.21E-01
334	18.00	15.00	5.56E-03	5.52E-01	2.73E-02
335	19.00	15.00	1.74E-03	1.10E+00	1.94E-01
336	20.00	15.00	0.00E+00	1.84E+00	3.73E-01

FIRST EXAMPLE 20' x 20'
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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
337	0.00	16.00	0.00E+00	1.41E+00	2.84E-01
338	1.00	16.00	1.33E-03	8.39E-01	1.54E-01
339	2.00	16.00	4.24E-03	4.18E-01	4.62E-02
340	3.00	16.00	7.95E-03	1.13E-01	-3.86E-02
341	4.00	16.00	1.19E-02	-1.02E-01	-1.02E-01
342	5.00	16.00	1.57E-02	-2.49E-01	-1.47E-01
343	6.00	16.00	1.91E-02	-3.46E-01	-1.77E-01
344	7.00	16.00	2.18E-02	-4.07E-01	-1.96E-01
345	8.00	16.00	2.39E-02	-4.44E-01	-2.07E-01
346	9.00	16.00	2.51E-02	-4.63E-01	-2.13E-01
347	10.00	16.00	2.55E-02	-4.69E-01	-2.14E-01
348	11.00	16.00	2.51E-02	-4.63E-01	-2.13E-01
349	12.00	16.00	2.39E-02	-4.44E-01	-2.07E-01
350	13.00	16.00	2.18E-02	-4.07E-01	-1.96E-01
351	14.00	16.00	1.91E-02	-3.46E-01	-1.77E-01
352	15.00	16.00	1.57E-02	-2.49E-01	-1.47E-01
353	16.00	16.00	1.19E-02	-1.02E-01	-1.02E-01
354	17.00	16.00	7.95E-03	1.13E-01	-3.86E-02
355	18.00	16.00	4.24E-03	4.18E-01	4.62E-02
356	19.00	16.00	1.33E-03	8.39E-01	1.54E-01
357	20.00	16.00	0.00E+00	1.41E+00	2.84E-01
358	0.00	17.00	0.00E+00	9.41E-01	1.90E-01
359	1.00	17.00	8.86E-04	5.68E-01	1.23E-01
360	2.00	17.00	2.84E-03	2.90E-01	9.35E-02
361	3.00	17.00	5.32E-03	9.28E-02	9.28E-02
362	4.00	17.00	7.95E-03	-3.86E-02	1.13E-01
363	5.00	17.00	1.05E-02	-1.21E-01	1.46E-01
364	6.00	17.00	1.27E-02	-1.71E-01	1.85E-01
365	7.00	17.00	1.45E-02	-1.98E-01	2.22E-01
366	8.00	17.00	1.58E-02	-2.12E-01	2.53E-01
367	9.00	17.00	1.66E-02	-2.19E-01	2.73E-01
368	10.00	17.00	1.69E-02	-2.21E-01	2.80E-01
369	11.00	17.00	1.66E-02	-2.19E-01	2.73E-01
370	12.00	17.00	1.58E-02	-2.12E-01	2.53E-01
371	13.00	17.00	1.45E-02	-1.98E-01	2.22E-01
372	14.00	17.00	1.27E-02	-1.71E-01	1.85E-01
373	15.00	17.00	1.05E-02	-1.21E-01	1.46E-01
374	16.00	17.00	7.95E-03	-3.86E-02	1.13E-01
375	17.00	17.00	5.32E-03	9.28E-02	9.28E-02
376	18.00	17.00	2.84E-03	2.90E-01	9.35E-02
377	19.00	17.00	8.86E-04	5.68E-01	1.23E-01
378	20.00	17.00	0.00E+00	9.41E-01	1.90E-01

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POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
379	0.00	18.00	0.00E+00	4.90E-01	9.90E-02
380	1.00	18.00	4.62E-04	3.20E-01	1.12E-01
381	2.00	18.00	1.51E-03	1.82E-01	1.82E-01
382	3.00	18.00	2.84E-03	9.35E-02	2.90E-01
383	4.00	18.00	4.24E-03	4.62E-02	4.18E-01
384	5.00	18.00	5.56E-03	2.73E-02	5.52E-01
385	6.00	18.00	6.72E-03	2.50E-02	6.79E-01
386	7.00	18.00	7.66E-03	3.07E-02	7.87E-01
387	8.00	18.00	8.35E-03	3.85E-02	8.70E-01
388	9.00	18.00	8.77E-03	4.46E-02	9.21E-01
389	10.00	18.00	8.91E-03	4.68E-02	9.39E-01
390	11.00	18.00	8.77E-03	4.46E-02	9.21E-01
391	12.00	18.00	8.35E-03	3.85E-02	8.70E-01
392	13.00	18.00	7.66E-03	3.07E-02	7.87E-01
393	14.00	18.00	6.72E-03	2.50E-02	6.79E-01
394	15.00	18.00	5.56E-03	2.73E-02	5.52E-01
395	16.00	18.00	4.24E-03	4.62E-02	4.18E-01
396	17.00	18.00	2.84E-03	9.35E-02	2.90E-01
397	18.00	18.00	1.51E-03	1.82E-01	1.82E-01
398	19.00	18.00	4.62E-04	3.20E-01	1.12E-01
399	20.00	18.00	0.00E+00	4.90E-01	9.90E-02
400	0.00	19.00	0.00E+00	1.39E-01	2.80E-02
401	1.00	19.00	1.31E-04	1.28E-01	1.28E-01
402	2.00	19.00	4.62E-04	1.12E-01	3.20E-01
403	3.00	19.00	8.86E-04	1.23E-01	5.68E-01
404	4.00	19.00	1.33E-03	1.54E-01	8.39E-01
405	5.00	19.00	1.74E-03	1.94E-01	1.10E+00
406	6.00	19.00	2.09E-03	2.35E-01	1.34E+00
407	7.00	19.00	2.38E-03	2.71E-01	1.54E+00
408	8.00	19.00	2.58E-03	2.99E-01	1.68E+00
409	9.00	19.00	2.71E-03	3.16E-01	1.77E+00
410	10.00	19.00	2.75E-03	3.22E-01	1.80E+00
411	11.00	19.00	2.71E-03	3.16E-01	1.77E+00
412	12.00	19.00	2.58E-03	2.99E-01	1.68E+00
413	13.00	19.00	2.38E-03	2.71E-01	1.54E+00
414	14.00	19.00	2.09E-03	2.35E-01	1.34E+00
415	15.00	19.00	1.74E-03	1.94E-01	1.10E+00
416	16.00	19.00	1.33E-03	1.54E-01	8.39E-01
417	17.00	19.00	8.86E-04	1.23E-01	5.68E-01
418	18.00	19.00	4.62E-04	1.12E-01	3.20E-01
419	19.00	19.00	1.31E-04	1.28E-01	1.28E-01
420	20.00	19.00	0.00E+00	1.39E-01	2.80E-02

FIRST EXAMPLE 20' x 20' PAGE11
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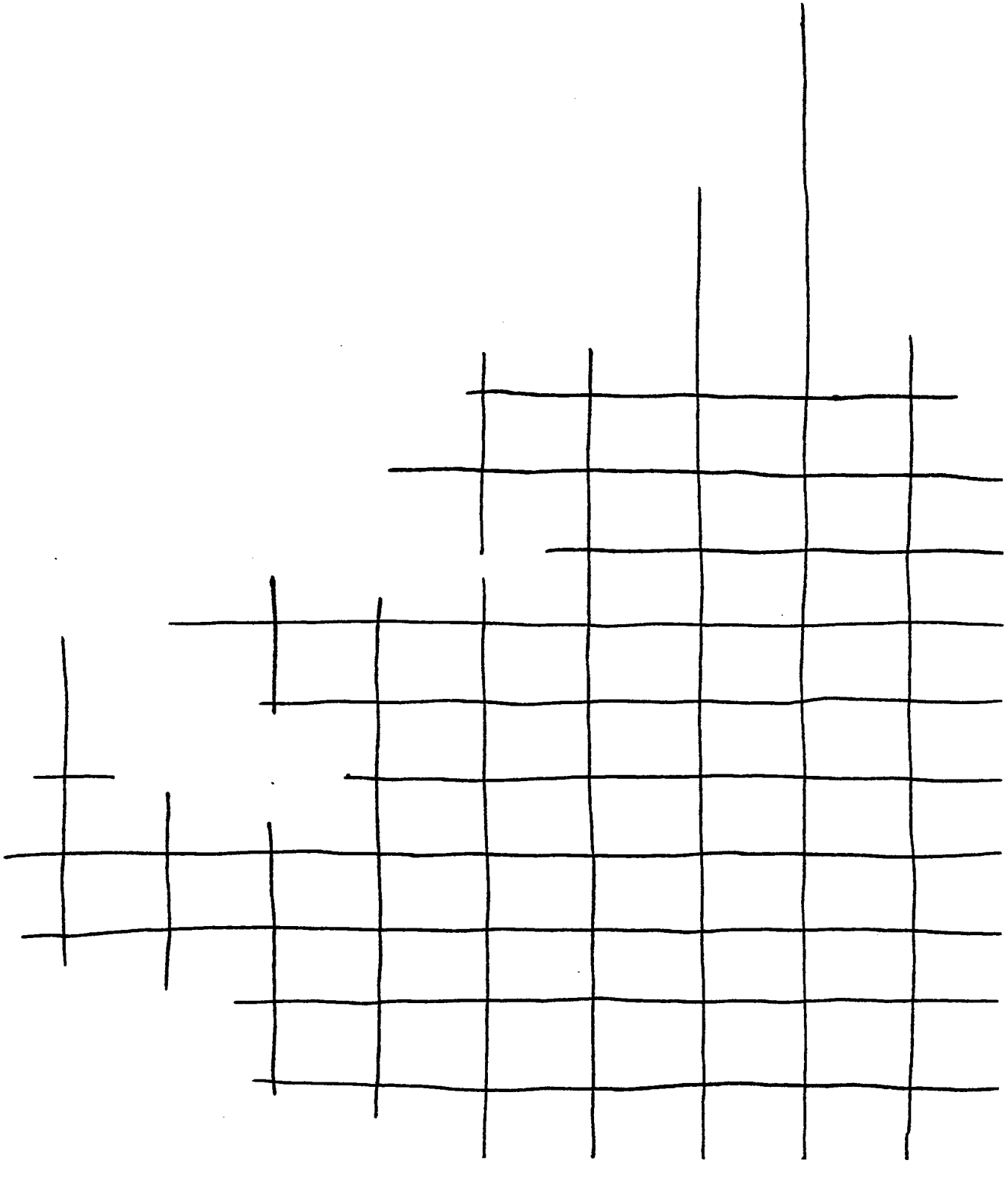
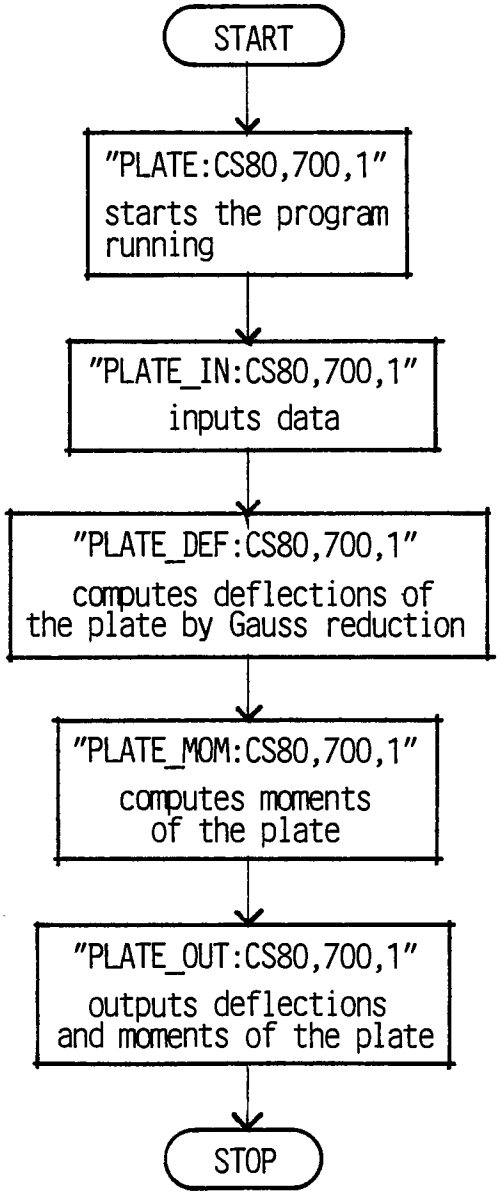
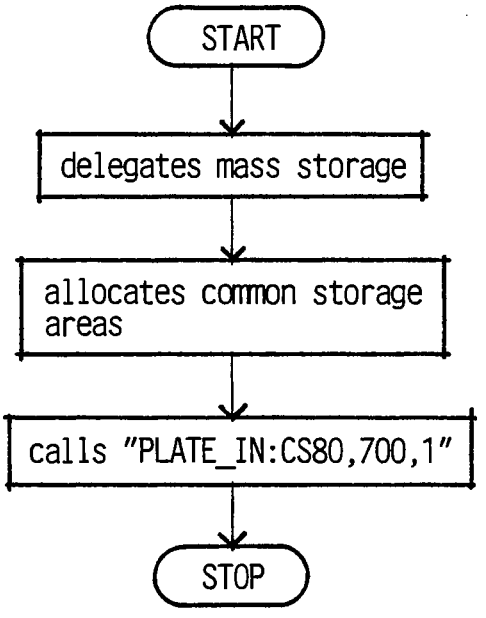
POINT #	X(ft)	Y(ft)	DEFLECTION(in)	MOMENT X (ft-k)	MOMENT Y (ft-k)
421	0.00	20.00	0.00E+00	0.00E+00	0.00E+00
422	1.00	20.00	0.00E+00	2.80E-02	1.39E-01
423	2.00	20.00	0.00E+00	9.90E-02	4.90E-01
424	3.00	20.00	0.00E+00	1.90E-01	9.41E-01
425	4.00	20.00	0.00E+00	2.84E-01	1.41E+00
426	5.00	20.00	0.00E+00	3.73E-01	1.84E+00
427	6.00	20.00	0.00E+00	4.49E-01	2.22E+00
428	7.00	20.00	0.00E+00	5.09E-01	2.52E+00
429	8.00	20.00	0.00E+00	5.54E-01	2.74E+00
430	9.00	20.00	0.00E+00	5.80E-01	2.87E+00
431	10.00	20.00	0.00E+00	5.89E-01	2.92E+00
432	11.00	20.00	0.00E+00	5.80E-01	2.87E+00
433	12.00	20.00	0.00E+00	5.54E-01	2.74E+00
434	13.00	20.00	0.00E+00	5.09E-01	2.52E+00
435	14.00	20.00	0.00E+00	4.49E-01	2.22E+00
436	15.00	20.00	0.00E+00	3.73E-01	1.84E+00
437	16.00	20.00	0.00E+00	2.84E-01	1.41E+00
438	17.00	20.00	0.00E+00	1.90E-01	9.41E-01
439	18.00	20.00	0.00E+00	9.90E-02	4.90E-01
440	19.00	20.00	0.00E+00	2.80E-02	1.39E-01
441	20.00	20.00	0.00E+00	0.00E+00	0.00E+00



OVERALL FLOW CHART



"PLATE:CS80,700,1" FLOW CHART



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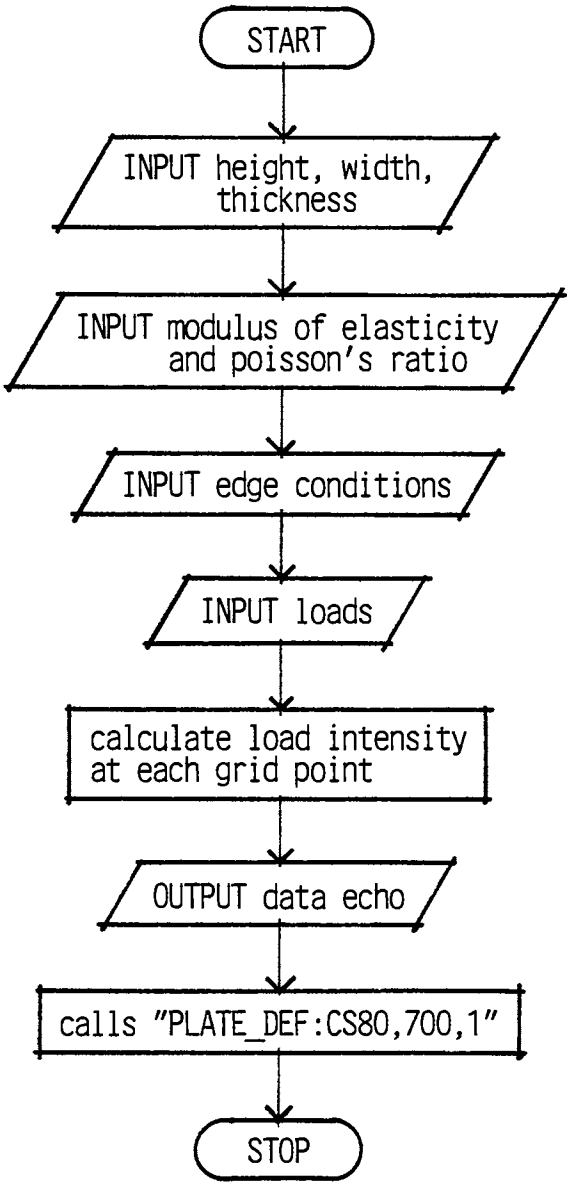

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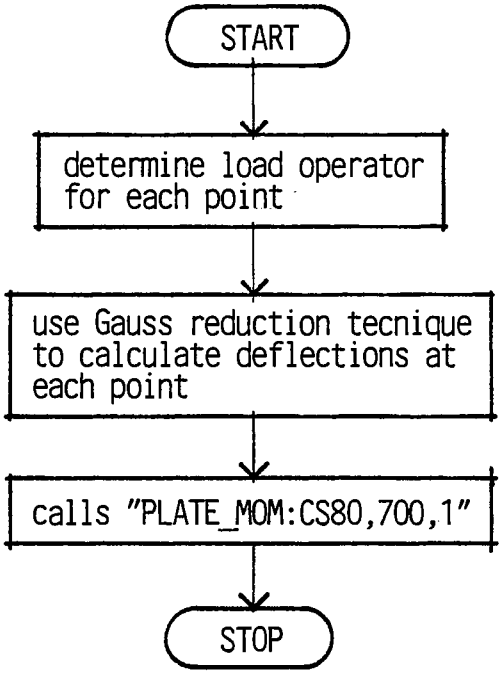

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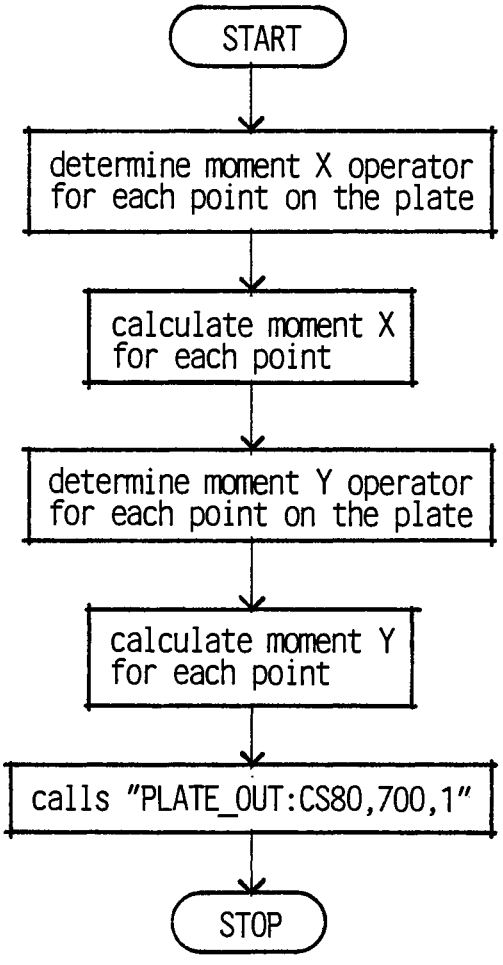
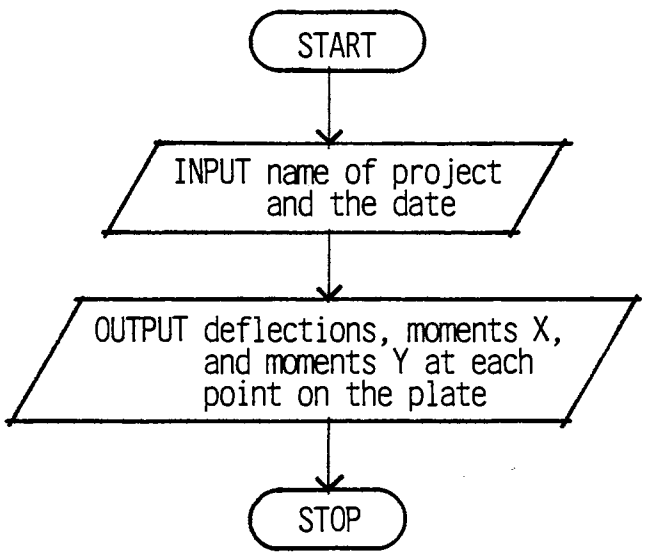
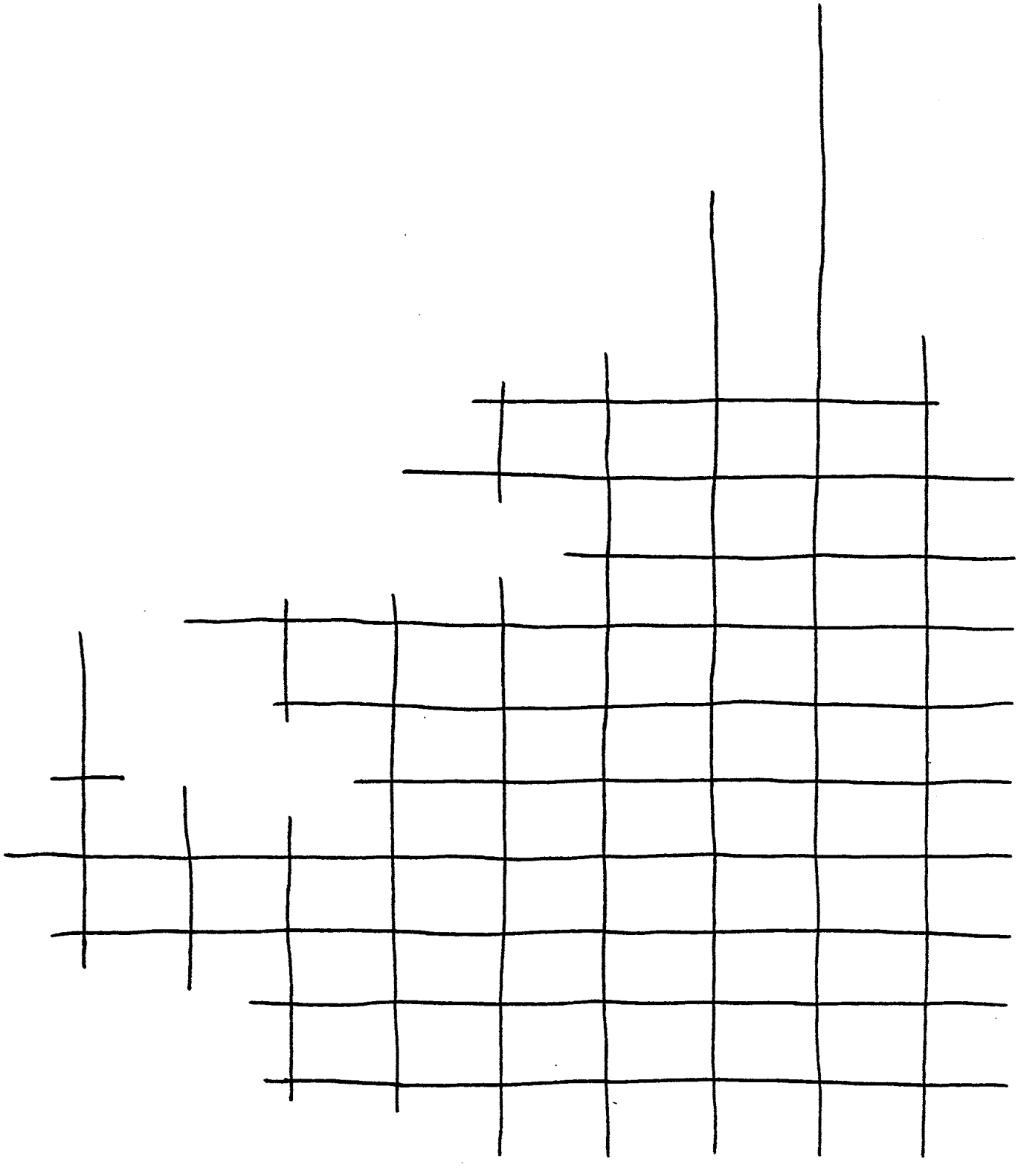


"PLATE OUT:CS80,700,1" FLOW CHART





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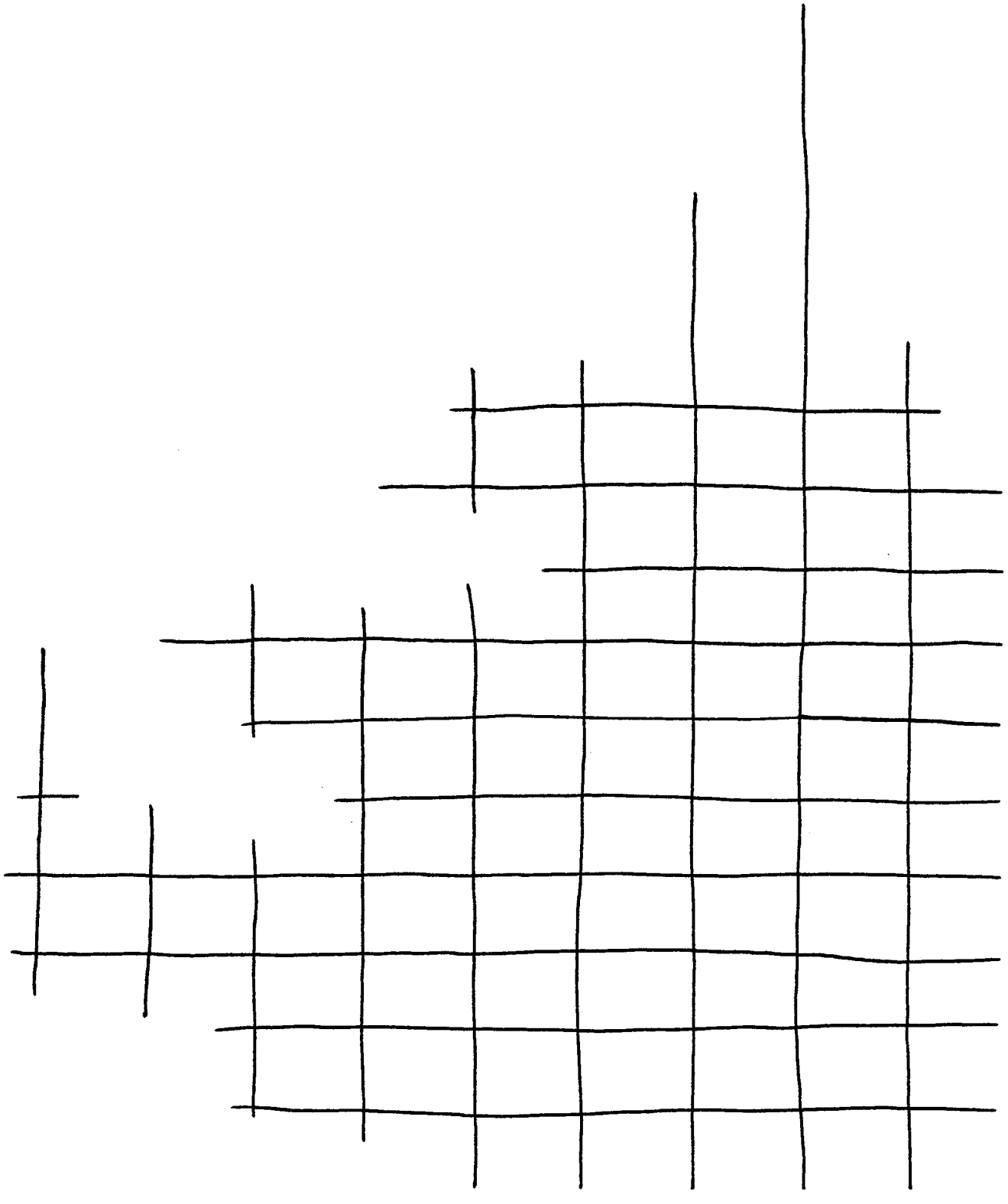
10    ! RE-STORE "PLATE:CS80,700,1"
20    !
30    ! THIS PROGRAM IS FOR DETERMINING DEFLECTIONS AND MOMENTS IN PLATES.
40    !
50    MASS STORAGE IS ":CS80,700,0"
60    OPTION BASE 1
70    COM /Matrices/ REAL Load(441),Def(441),Mx(441),My(441)
80    COM /Variables/ REAL A,B,H,W,E,Pr,T,D,INTEGER Nec,Eec,Wec,Sec
90    !
100   ! PLATE_IN INPUTS DATA ABOUT THE PLATE AND PROVIDES AN ECHO
110   ! PLATE_DEF CALCULATES THE DEFLECTIONS OF THE PLATE IN THE Z DIRECTION
120   ! PLATE_MOM CALCULATES THE MOMENTS OF THE PLATE IN THE X AND Y DIRECTIONS
130   ! PLATE_OUT OUTPUTS DEFLECTIONS, MOMENTS AND SHEARS OF THE PLATE
140   !
150   PRINTER IS CRT
160   LOAD "PLATE_IN:CS80,700,1"
170   END
```



```
10     ! RE-STORE "PLATE_IN:CS80,700,1"
20     !
30     ! THIS PROGRAM IS FOR INPUTTING THE PROPERTIES OF THE PLATE
40     !
50     MASS STORAGE IS ":CS80,700,0"
60     OPTION BASE 1
70     COM /Matrices/ REAL Load(*),Def(*),Mx(*),My(*)
80     COM /Variables/ REAL A,B,H,W,E,Pr,T,D,INTEGER Nec,Eec,Wec,Sec
90     DIM Lecho(7,10)
100    Lc=0
110    !
120    ! INPUT PROPERTIES OF PLATE
130    !
140    PRINT "INPUT THE HEIGHT, WIDTH, AND THICKNESS OF THE PLATE,(ft)"
150    INPUT H,W,T
160    B=W/20
170    A=H/20
180    OUTPUT KBD;"K"; ! CLEAR SCREEN
190    PRINT "INPUT THE MODULUS OF ELASTICITY AND POISSON'S RATIO OF THE PLATE,(k
si)"
200    INPUT E,Pr
210    E=E*144 ! CONVERT TO KSF
220    OUTPUT KBD;"K"; ! CLEAR SCREEN
230    !
240    ! INPUT EDGE CONDITIONS OF THE PLATE
250    !
260    PRINT "INPUT EDGE CONDITIONS -- north, east, south, and west"
270    PRINT
280    PRINT "1 = fixed"
290    PRINT "2 = simple"
300    PRINT "3 = free"
310    INPUT Nec,Eec,Sec,Wec
320    OUTPUT KBD;"K"; ! CLEAR SCREEN
330    !
340    ! INPUT LOADS APPLIED TO THE PLATE
350    !
360    PRINT "INPUT NUMBER OF LOADS TO BE APPLIED"
370    INPUT N
380    REDIM Lecho(7,N)
390    OUTPUT KBD;"K"; ! CLEAR SCREEN
400    FOR Num=1 TO N
410      PRINT "SELECT TYPE OF LOAD"
420      PRINT
430      PRINT "1.  POINT LOAD"
440      PRINT "2.  UNIFORM LOAD"
450      PRINT "3.  TRIANGULAR LOAD"
460      INPUT Type
470      Lecho(1,Num)=Type
480      OUTPUT KBD;"K"; ! CLEAR SCREEN
490      ON Type GOTO 500,910,3440
500      !
510      ! POINT LOAD
520      !
530      PRINT "INPUT LOCATION (X,Y) FROM UPPER LEFT CORNER AND MAGNITUDE OF LOAD
;(ft,kips)"
540      INPUT X,Y,P
550      Lecho(2,Num)=X
560      Lecho(3,Num)=Y
570      Lecho(6,Num)=P
580      OUTPUT KBD;"K"; ! CLEAR SCREEN
```

```
590     Xo=INT(X/B)
600     Yo=INT(Y/A)
610     IF X=Xo*B THEN 820
620     IF Y=Yo*A THEN 770
630     Od=((X-Xo*B)*(X-Xo*B)+(Y-Yo*A)*(Y-Yo*A))^(1/2)
640     Td=((X-(Xo+1)*B)*(X-(Xo+1)*B)+(Y-Yo*A)*(Y-Yo*A))^(1/2)
650     Tod=((X-Xo*B)*(X-Xo*B)+(Y-(Yo+1)*A)*(Y-(Yo+1)*A))^(1/2)
660     Ttd=((X-(Xo+1)*B)*(X-(Xo+1)*B)+(Y-(Yo+1)*A)*(Y-(Yo+1)*A))^(1/2)
670     Den=Od+Td+Tod+Ttd
680     I=(Yo)*21+Xo+1
690     Ipo=I+1
700     Ipto=I+21
710     Iptt=I+22
720     Load(I)=Load(I)+(Od/Den)*P
730     Load(Ipo)=Load(Ipo)+(Td/Den)*P
740     Load(Ipto)=Load(Ipto)+(Tod/Den)*P
750     Load(Iptt)=Load(Iptt)+(Ttd/Den)*P
760     GOTO 10980
770     I=(Yo)*21+Xo+1
780     Ipo=I+1
790     Load(I)=Load(I)+(X/B-Xo)*P
800     Load(Ipo)=Load(Ipo)+(1-X/B+Xo)*P
810     GOTO 10980
820     IF Y=Yo*A THEN 880
830     I=(Yo)*21+Xo+1
840     Ipto=I+21
850     Load(I)=Load(I)+(Y/A-Yo)*P
860     Load(Ipto)=Load(Ipto)+(1-Y/A+Yo)*P
870     GOTO 10980
880     I=(Yo)*21+Xo+1
890     Load(I)=Load(I)+P
900     GOTO 10980
910     !
920     ! UNIFORM LOAD
930     !
940     PRINT "INPUT STARTING POINT, ENDING POINT, AND MAGNITUDE;(ft,k)"
950     INPUT Xo,Yo,Xt,Yt,P
960     Lecho(2,Num)=Xo
970     Lecho(3,Num)=Yo
980     Lecho(4,Num)=Xt
990     Lecho(5,Num)=Yt
1000    Lecho(6,Num)=P
1010    OUTPUT KBD;"K"; ! CLEAR SCREEN
1020    !
1030    ! DETERMINE COVERAGE
1040    !
1050    IF Xo<>0 THEN 1340
1060    IF Yo<>0 THEN 1340
1070    IF Xt<>W THEN 1340
1080    IF Yt<>H THEN 1340
1090    !
1100    ! TOTAL PLATE
1110    !
1120    Ctr=0
1130    FOR I=1 TO 441
1140     Ctr=Ctr+1
1150     IF I>21 THEN 1240
1160     IF Ctr=1 THEN 1200
1170     IF Ctr=21 THEN 1200
1180     Load(I)=Load(I)+(1/2)*A*B*P
1190     GOTO 1320
1200     Load(I)=Load(I)+(1/4)*A*B*P
1210     IF Ctr=1 THEN 1230
1220     Ctr=0
1230     GOTO 1320
1240     IF I>420 THEN 1160
```

```
1250      IF Ctr=1 THEN 1290
1260      IF Ctr=21 THEN 1290
1270      Load(I)=Load(I)+A*B*P
1280      GOTO 1320
1290      Load(I)=Load(I)+(1/2)*A*B*P
1300      IF Ctr=1 THEN 1320
1310      Ctr=0
1320     NEXT I
1330     GOTO 10980
1340     !
1350     ! UNIFORM LINE LOADS
1360     !
1370     IF Xt<>Xo THEN 1890
1380     Rs=INT(Yo/A)
1390     Celn=Yo-Rs*A
1400     IF Celn<(1/2) THEN 1420
1410     Rs=Rs+1
1420     Re=INT(Yt/A)
1430     Cels=Yt-Re*A
1440     IF Cels<=(1/2) THEN 1460
1450     Re=Re+1
1460     Jo=INT(Xo/B)
1470     IF (Jo*B)<Xo THEN 1650
1480     FOR I=Rs TO Re
1490      Pt=(I)*21+Jo+1
1500      IF I>Rs THEN 1560
1510      IF Celn<(1/2) THEN 1540
1520      Load(Pt)=Load(Pt)+A*(3/2-Celn)
1530      GOTO 1630
1540      Load(Pt)=Load(Pt)+A*(1/2-Celn)
1550      GOTO 1630
1560      IF I=Re THEN 1590
1570      Load(Pt)=Load(Pt)+P*A
1580      GOTO 1630
1590      IF Cels>(1/2) THEN 1620
1600      Load(Pt)=Load(Pt)+P*A*(1/2+Cels)
1610      GOTO 1630
1620      Load(Pt)=Load(Pt)+P*A*(Cels-1/2)
1630     NEXT I
1640     GOTO 10980
1650     Jt=Jo+1
1660     FOR I=Rs TO Re
1670      Pto=(I)*21+Jo+1
1680      Ptt=Pto+1
1690      IF I>Rs THEN 1770
1700      IF Celn<(1/2) THEN 1740
1710      Load(Pto)=Load(Pto)+P*A*(3/2-Celn)*(Xo/B-Jo)
1720      Load(Ptt)=Load(Ptt)+P*A*(3/2-Celn)*(Jt-Xo/B)
1730      GOTO 1870
1740      Load(Pto)=Load(Pto)+P*A*(1/2-Celn)*(Xo/B-Jo)
1750      Load(Ptt)=Load(Ptt)+P*A*(1/2-Celn)*(Jt-Xo/B)
1760      GOTO 1870
1770      IF I=Re THEN 1810
1780      Load(Pto)=Load(Pto)+P*A*(Xo/B-Jo)
1790      Load(Ptt)=Load(Ptt)+P*A*(Jt-Xo/B)
1800      GOTO 1870
1810      IF Cels>(1/2) THEN 1850
1820      Load(Pto)=Load(Pto)+P*A*(Cels+1/2)*(Xo/B-Jo)
1830      Load(Ptt)=Load(Ptt)+P*A*(Cels+1/2)*(Jt-Xo/B)
1840      GOTO 1870
1850      Load(Pto)=Load(Pto)+P*A*(Cels-1/2)*(Xo/B-Jo)
1860      Load(Ptt)=Load(Ptt)+P*A*(Cels-1/2)*(Jt-Xo/B)
1870     NEXT I
1880     GOTO 10980
1890     IF Yt<>Yo THEN 2400
1900     Ps=INT(Xo/B)
```

```
1920    IF Celw<(1/2) THEN 1940
1930    Ps=Ps+1
1940    Pe=INT(Xt/B)
1950    Cele=Xt-Pe*B
1960    IF Cele<=(1/2) THEN 1980
1970    Pe=Pe+1
1980    Ro=INT(Yo/A)
1990    IF (Ro*A)<>Yo THEN 2170
2000    FOR I=Ps TO Pe
2010     Pt=(Ro)*21+I+1
2020     IF I>Ps THEN 2080
2030     IF Celw<(1/2) THEN 2060
2040     Load(Pt)=Load(Pt)+P*B*(3/2-Celw)
2050     GOTO 2150
2060     Load(Pt)=Load(Pt)+P*B*(1/2-Celw)
2070     GOTO 2150
2080     IF I=Pe THEN 2110
2090     Load(Pt)=Load(Pt)+P*B
2100     GOTO 2150
2110     IF Cele>(1/2) THEN 2140
2120     Load(Pt)=Load(Pt)+P*B*(Cele+1/2)
2130     GOTO 2150
2140     Load(Pt)=Load(Pt)+P*B*(Cele-1/2)
2150    NEXT I
2160    GOTO 10980
2170    FOR I=Ps TO Pe
2180     Pto=(Ro)*21+I+1
2190     Ptto=Pto+21
2200     IF I>Ps THEN 2280
2210     IF Celw<(1/2) THEN 2250
2220     Load(Pto)=Load(Pto)+P*(Yo/A-Ro)*B*(3/2-Celw)
2230     Load(Ptto)=Load(Ptto)+P*(1-Yo/A+Ro)*B*(3/2-Celw)
2240     GOTO 2380
2250     Load(Pto)=Load(Pto)+P*(Yo/A-Ro)*B*(1/2-Celw)
2260     Load(Ptto)=Load(Ptto)+P*(1-Yo/A+Ro)*B*(1/2-Celw)
2270     GOTO 2380
2280     IF I=Pe THEN 2320
2290     Load(Pto)=Load(Pto)+P*(Yo/A-Ro)*B
2300     Load(Ptto)=Load(Ptto)+P*(1-Yo/A+Ro)*B
2310     GOTO 2380
2320     IF Cele>(1/2) THEN 2360
2330     Load(Pto)=Load(Pto)+P*(Yo/A-Ro)*B*(Cele+1/2)
2340     Load(Ptto)=Load(Ptto)+P*(1-Yo/A+Ro)*B*(Cele+1/2)
2350     GOTO 2380
2360     Load(Pto)=Load(Pto)+P*(Yo/A-Ro)*B*(Cele-1/2)
2370     Load(Ptto)=Load(Ptto)+P*(1-Yo/A+Ro)*B*(Cele-1/2)
2380    NEXT I
2390    GOTO 10980
2400    !
2410    ! FRACTIONAL UNIFORM LOAD -- FRACTIONAL COVER AREA
2420    !
2430    Rs=INT(Yo/A)
2440    Celn=Yo-Rs*A
2450    IF Celn<(1/2) THEN 2470
2460    Rs=Rs+1
2470    Re=INT(Yt/A)
2480    Cels=Yt-Re*A
2490    IF Cels<=(1/2) THEN 2510
2500    Re=Re+1
2510    Ps=INT(Xo/B)
2520    Celw=Xo-Ps*B
2530    IF Celw<(1/2) THEN 2550
2540    Ps=Ps+1
2550    Pe=INT(Xt/B)
2560    Cele=Xt-Pe*B
```

```
2570     IF Cele<=(1/2) THEN 2590
2580     Pe=Pe+1
2590     FOR I=Rs TO Re
2600      IF I>Rs THEN 2930
2610      FOR J=Ps TO Pe
2620         Pt=(I)*21+J+1
2630         IF J>Ps THEN 2750
2640         IF Celn<(1/2) THEN 2700
2650         IF Celw<(1/2) THEN 2680
2660         Load(Pt)=Load(Pt)+P*B*(3/2-Celw)*A*(3/2-Celn)
2670         GOTO 2910
2680         Load(Pt)=Load(Pt)+P*B*(1/2-Celw)*A*(3/2-Celn)
2690         GOTO 2910
2700         IF Celw<(1/2) THEN 2730
2710         Load(Pt)=Load(Pt)+P*B*(3/2-Celw)*A*(1/2-Celn)
2720         GOTO 2910
2730         Load(Pt)=Load(Pt)+P*B*(1/2-Celw)*A*(1/2-Celn)
2740         GOTO 2910
2750         IF J=Pe THEN 2810
2760         IF Celn<(1/2) THEN 2790
2770         Load(Pt)=Load(Pt)+P*B*A*(3/2-Celn)
2780         GOTO 2910
2790         Load(Pt)=Load(Pt)+P*B*A*(1/2-Celn)
2800         GOTO 2910
2810         IF Celn<(1/2) THEN 2870
2820         IF Cele>(1/2) THEN 2850
2830         Load(Pt)=Load(Pt)+P*B*(Cele+1/2)*A*(3/2-Celn)
2840         GOTO 2910
2850         Load(Pt)=Load(Pt)+P*B*(Cele-1/2)*A*(3/2-Celn)
2860         GOTO 2910
2870         IF Cele>(1/2) THEN 2900
2880         Load(Pt)=Load(Pt)+P*B*(Cele+1/2)*A*(1/2-Celn)
2890         GOTO 2910
2900         Load(Pt)=Load(Pt)+P*B*(Cele-1/2)*A*(1/2-Celn)
2910      NEXT J
2920      GOTO 3420
2930      IF I=Re THEN 3110
2940      FOR J=Ps TO Pe
2950         Pt=(I)*21+J+1
2960         IF J>Ps THEN 3020
2970         IF Celw<(1/2) THEN 3000
2980         Load(Pt)=Load(Pt)+P*A*B*(3/2-Celw)
2990         GOTO 3090
3000         Load(Pt)=Load(Pt)+P*A*B*(1/2-Celw)
3010         GOTO 3090
3020         IF J=Pe THEN 3050
3030         Load(Pt)=Load(Pt)+P*A*B
3040         GOTO 3090
3050         IF Cele>(1/2) THEN 3080
3060         Load(Pt)=Load(Pt)+P*A*B*(Cele+1/2)
3070         GOTO 3090
3080         Load(Pt)=Load(Pt)+P*A*B*(Cele-1/2)
3090      NEXT J
3100      GOTO 3420
3110      FOR J=Ps TO Pe
3120         Pt=(I)*21+J+1
3130         IF J>Ps THEN 3250
3140         IF Cels>(1/2) THEN 3200
3150         IF Celw<(1/2) THEN 3180
3160         Load(Pt)=Load(Pt)+P*B*(3/2-Celw)*A*(Cels+1/2)
3170         GOTO 3410
3180         Load(Pt)=Load(Pt)+P*B*(1/2-Celw)*A*(Cels+1/2)
3190         GOTO 3410
3200         IF Celw<(1/2) THEN 3230
3210         Load(Pt)=Load(Pt)+P*B*(3/2-Celw)*A*(Cels-1/2)
3220         GOTO 3410
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3230          Load(Pt)=Load(Pt)+P*B*A*(1/2-Cels)*W/H*(Cels-1/2)
3240          GOTO 3410
3250          IF J=Pe THEN 3310
3260          IF Cels>(1/2) THEN 3290
3270          Load(Pt)=Load(Pt)+P*B*A*(Cels+1/2)
3280          GOTO 3410
3290          Load(Pt)=Load(Pt)+P*B*A*(Cels-1/2)
3300          GOTO 3410
3310          IF Cels>(1/2) THEN 3370
3320          IF Cele>(1/2) THEN 3350
3330          Load(Pt)=Load(Pt)+P*B*(Cele+1/2)*A*(Cels+1/2)
3340          GOTO 3410
3350          Load(Pt)=Load(Pt)+P*B*(Cele-1/2)*A*(Cels+1/2)
3360          GOTO 3410
3370          IF Cele>(1/2) THEN 3400
3380          Load(Pt)=Load(Pt)+P*B*(Cele+1/2)*A*(Cels-1/2)
3390          GOTO 3410
3400          Load(Pt)=Load(Pt)+P*B*(Cele-1/2)*A*(Cels-1/2)
3410       NEXT J
3420     NEXT I
3430     GOTO 10980
3440     !
3450     ! TRIANGULAR LOADINGS
3460     !
3470     PRINT "INPUT STARTING POINT, ENDING POINT, AND MAGNITUDE;(ft,k)"
3480     INPUT Xo,Yo,Xt,Yt,P
3490     Lecho(2,Num)=Xo
3500     Lecho(3,Num)=Yo
3510     Lecho(4,Num)=Xt
3520     Lecho(5,Num)=Yt
3530     Lecho(6,Num)=P
3540     OUTPUT KBD;"K";   ! CLEAR SCREEN
3550     PRINT "SELECT DIRECTION OF LOAD"
3560     PRINT
3570     PRINT "1. X increasing"
3580     PRINT "2. X decreasing"
3590     PRINT "3. Y increasing"
3600     PRINT "4. Y decreasing"
3610     INPUT Dir
3620     Lecho(7,Num)=Dir
3630     OUTPUT KBD;"K"; ! CLEAR SCREEN
3640     IF Xo<>0 THEN 5030
3650     IF Yo<>0 THEN 5030
3660     IF Xt<>W THEN 5030
3670     IF Yt<>H THEN 5030
3680     !
3690     ! TOTAL PLATE COVERAGE
3700     !
3710     IF Dir=1 THEN 3750
3720     IF Dir=2 THEN 4020
3730     IF Dir=3 THEN 4290
3740     IF Dir=4 THEN 4660
3750     !
3760     ! X increasing
3770     !
3780     Ctr=0
3790     FOR I=1 TO 441
3800      Ctr=Ctr+1
3810      IF I>21 THEN 3910
3820      IF Ctr>1 THEN 3850
3830      Load(I)=Load(I)+P*B*B*A/(16*W)
3840      GOTO 4000
3850      IF Ctr=21 THEN 3880
3860      Load(I)=Load(I)+P*(Ctr-1)*B*B*A/(2*W)
3870      GOTO 4000
3880      Load(I)=Load(I)+P*(Ctr-1/4)*B*B*A/(4*W)
```

```
3900      GOTO 4000
3910      IF I>420 THEN 3820
3920      IF Ctr>1 THEN 3950
3930      Load(I)=Load(I)+P*B*B*A/(8*W)
3940      GOTO 4000
3950      IF Ctr=21 THEN 3980
3960      Load(I)=Load(I)+P*(Ctr-1)*B*B*A/W
3970      GOTO 4000
3980      Load(I)=Load(I)+P*(Ctr-1/4)*B*B*A/(2*W)
3990      Ctr=0
4000    NEXT I
4010    GOTO 10980
4020    !
4030    ! X decreasing
4040    !
4050    Ctr=0
4060    FOR I=1 TO 441
4070      Ctr=Ctr+1
4080      IF I>21 THEN 4180
4090      IF Ctr>1 THEN 4120
4100      Load(I)=Load(I)+P*(W-(1/4)*B)*B*A/(4*W)
4110      GOTO 4270
4120      IF Ctr=21 THEN 4150
4130      Load(I)=Load(I)+P*(W-(Ctr-1)*B)*B*A/(2*W)
4140      GOTO 4270
4150      Load(I)=Load(I)+P*B*B*A/(16*W)
4160      Ctr=0
4170      GOTO 4270
4180      IF I>420 THEN 4090
4190      IF Ctr>1 THEN 4220
4200      Load(I)=Load(I)+P*(W-(1/4)*B)*B*A/(2*W)
4210      GOTO 4270
4220      IF Ctr=21 THEN 4250
4230      Load(I)=Load(I)+P*(W-(Ctr-1)*B)*B*A/W
4240      GOTO 4270
4250      Load(I)=Load(I)+P*B*B*A/(8*W)
4260      Ctr=0
4270    NEXT I
4280    GOTO 10980
4290    !
4300    ! Y increasing
4310    !
4320    Ctr=0
4330    Row=0
4340    FOR I=1 TO 441
4350      Ctr=Ctr+1
4360      IF I>21 THEN 4460
4370      IF Ctr>1 THEN 4430
4380      Load(I)=Load(I)+P*A*A*B/(16*H)
4390      IF Ctr=1 THEN 4640
4400      Ctr=0
4410      Row=Row+1
4420      GOTO 4640
4430      IF Ctr=21 THEN 4380
4440      Load(I)=Load(I)+P*A*A*B/(8*H)
4450      GOTO 4640
4460      IF I>420 THEN 4560
4470      IF Ctr>1 THEN 4530
4480      Load(I)=Load(I)+P*Row*A*A*B/(2*H)
4490      IF Ctr=1 THEN 4640
4500      Ctr=0
4510      Row=Row+1
4520      GOTO 4640
4530      IF Ctr=21 THEN 4480
4540      Load(I)=Load(I)+P*Row*A*A*B/H
```

```
4560     IF Ctr>1 THEN 4620
4570     Load(I)=Load(I)+P*(Row+3/4)*A*A*B/(4*H)
4580     IF Ctr=1 THEN 4640
4590     Ctr=0
4600     Row=Row+1
4610     GOTO 4640
4620     IF Ctr=21 THEN 4570
4630     Load(I)=Load(I)+P*(Row+3/4)*A*A*B/(2*H)
4640    NEXT I
4650    GOTO 10980
4660    !
4670    ! Y decreasing
4680    !
4690    Ctr=0
4700    Row=0
4710    FOR I=1 TO 441
4720     Ctr=Ctr+1
4730     IF I>21 THEN 4830
4740     IF Ctr>1 THEN 4800
4750     Load(I)=Load(I)+P*(H-(A/4))*A*B/(4*H)
4760     IF Ctr=1 THEN 5010
4770     Ctr=0
4780     Row=Row+1
4790     GOTO 5010
4800     IF Ctr=21 THEN 4750
4810     Load(I)=Load(I)+P*(H-(A/4))*A*B/(2*H)
4820     GOTO 5010
4830     IF I>420 THEN 4930
4840     IF Ctr>1 THEN 4900
4850     Load(I)=Load(I)+P*(H-Row*A)*A*B/(2*H)
4860     IF Ctr=1 THEN 5010
4870     Ctr=0
4880     Row=Row+1
4890     GOTO 5010
4900     IF Ctr=21 THEN 4850
4910     Load(I)=Load(I)+P*(H-Row*A)*A*B/H
4920     GOTO 5010
4930     IF Ctr>1 THEN 4990
4940     Load(I)=Load(I)+P*A*A*B/(16*H)
4950     IF Ctr=1 THEN 5010
4960     Ctr=0
4970     Row=Row+1
4980     GOTO 5010
4990     IF Ctr=21 THEN 4940
5000     Load(I)=Load(I)+P*A*A*B/(8*H)
5010    NEXT I
5020    GOTO 10980
5030    !
5040    ! TRIANGULAR LINE LOADS
5050    !
5060    Wf=Xt-Xo
5070    Hf=Yt-Yo
5080    IF Xo=Xt THEN 6350
5090    IF Yo<>Yt THEN 7240
5100    Ps=INT(Xo/B)
5110    Celw=Xo-Ps*B
5120    IF Celw<(1/2) THEN 5140
5130    Ps=Ps+1
5140    Pe=INT(Xt/B)
5150    Cele=Xt-Pe*B
5160    IF Cele<=(1/2) THEN 5180
5170    Pe=Pe+1
5180    Ro=INT(Yo/A)
5190    IF (Ro*A)<Yo THEN 5620
5200    IF Dir=1 THEN 5220
```

```
5210     IF Dir=2 THEN 5420
5220     !
5230     ! X increasing
5240     !
5250     FOR I=Ps TO Pe
5260      Pt=(Ro)*21+I+1
5270      IF I>Ps THEN 5330
5280      IF Celw<(1/2) THEN 5310
5290      Load(Pt)=Load(Pt)+(P*((3/2-Celw)*B)^2)/(2*Wf)
5300      GOTO 5400
5310      Load(Pt)=Load(Pt)+(P*((1/2-Celw)*B)^2)/(2*Wf)
5320      GOTO 5400
5330      IF I=Pe THEN 5360
5340      Load(Pt)=Load(Pt)+P*(I*B-Xo)*B/Wf
5350      GOTO 5400
5360      IF Cele>(1/2) THEN 5390
5370      Load(Pt)=Load(Pt)+P*((I-1/4+Cele/2)*B-Xo)*(Cele+1/2)*B/Wf
5380      GOTO 5400
5390      Load(Pt)=Load(Pt)+P*((I-3/4+Cele/2)*B-Xo)*(Cele-1/2)*B/Wf
5400     NEXT I
5410     GOTO 10980
5420     !
5430     ! X decreasing
5440     !
5450     FOR I=Ps TO Pe
5460      Pt=(Ro)*21+I+1
5470      IF I>Ps THEN 5530
5480      IF Celw<(1/2) THEN 5510
5490      Load(Pt)=Load(Pt)+P*(Xt-B*(I-1/4+Celw/2))*(3/2-Celw)*B/Wf
5500      GOTO 5600
5510      Load(Pt)=Load(Pt)+P*(Xt-B*(I+1/4+Celw/2))*(1/2-Celw)*B/Wf
5520      GOTO 5600
5530      IF I=Pe THEN 5560
5540      Load(Pt)=Load(Pt)+P*(Xt-B*I)*B/Wf
5550      GOTO 5600
5560      IF Cele>(1/2) THEN 5590
5570      Load(Pt)=Load(Pt)+((P*(Cele+1/2)*B)^2)/(2*Wf)
5580      GOTO 5600
5590      Load(Pt)=Load(Pt)+((P*(Cele-1/2)*B)^2)/(2*Wf)
5600     NEXT I
5610     GOTO 10980
5620     Rt=Ro+1
5630     IF Dir=1 THEN 5650
5640     IF Dir=2 THEN 5910
5650     !
5660     ! X increasing
5670     !
5680     FOR I=Ps TO Pe
5690      Pto=(Ro)*21+I+1
5700      Ptto=Pto+21
5710      IF I>Ps THEN 5790
5720      IF Celw<(1/2) THEN 5760
5730      Load(Pto)=Load(Pto)+P*(((3/2-Celw)*B)^2)*(Yo/A-Ro)/(2*Wf)
5740      Load(Ptto)=Load(Ptto)+P*(((3/2-Celw)*B)^2)*(Rt-Yo/A)/(2*Wf)
5750      GOTO 5890
5760      Load(Pto)=Load(Pto)+P*(((1/2-Celw)*B)^2)*(Yo/A-Ro)/(2*Wf)
5770      Load(Ptto)=Load(Ptto)+P*(((1/2-Celw)*B)^2)*(Rt-Yo/A)/(2*Wf)
5780      GOTO 5890
5790      IF I=Pe THEN 5830
5800      Load(Pto)=Load(Pto)+P*(I*B-Xo)*B*(Yo/A-Ro)/Wf
5810      Load(Ptto)=Load(Ptto)+P*(I*B-Xo)*B*(Rt-Yo/A)/Wf
5820      GOTO 5890
5830      IF Cele>(1/2) THEN 5870
5840      Load(Pto)=Load(Pto)+P*(B*(I-1/4+Cele/2)-Xo)*B*(1/2+Cele)*(Yo/A-Ro)/Wf
5850      Load(Ptto)=Load(Ptto)+P*(B*(I-1/4+Cele/2)-Xo)*B*(1/2+Cele)*(Rt-Yo/A)/Wf
5860      GOTO 5890
```

```
5870     Load(Pto)=Load(Pto)+P*(B*(I-3/4+Cele/2)-Xo)*B*(Cele-1/2)*(Yo/A-Ro)/Wf
5880     Load(Ptto)=Load(Ptto)+P*(B*(I-3/4+Cele/2)-Xo)*B*(Cele-1/2)*(Rt-Yo/A)/Wf
5890    NEXT I
5900    GOTO 10980
5910    !
5920    ! X decreasing
5930    !
5940    FOR I=Ps TO Pe
5950     Pto=(Ro)*21+I+1
5960     Ptto=Pto+21
5970     IF I>Ps THEN 6050
5980     IF Celw<(1/2) THEN 6020
5990     Load(Pto)=Load(Pto)+P*(Xt-B*(I-1/4+Celw/2))*B*(3/2-Celw)*(Yo/A-Ro)/Wf
6000     Load(Ptto)=Load(Ptto)+P*(Xt-B*(I-1/4+Celw/2))*B*(3/2-Celw)*(Rt-Yo/A)/Wf
6010     GOTO 6150
6020     Load(Pto)=Load(Pto)+P*(Xt-B*(I+1/4+Celw/2))*B*(1/2-Celw)*(Yo/A-Ro)/Wf
6030     Load(Ptto)=Load(Ptto)+P*(Xt-B*(I+1/4+Celw/2))*B*(1/2-Celw)*(Rt-Yo/A)/Wf
6040     GOTO 6150
6050     IF I=Pe THEN 6090
6060     Load(Pto)=Load(Pto)+P*(Xt-B*I)*B*(Yo/A-Ro)/Wf
6070     Load(Ptto)=Load(Ptto)+P*(Xt-B*I)*B*(Rt-Yo/A)/Wf
6080     GOTO 6150
6090     IF Cele>(1/2) THEN 6130
6100     Load(Pto)=Load(Pto)+P*(((Cele+1/2)*B)^2)*(Yo/A-Ro)/(2*Wf)
6110     Load(Ptto)=Load(Ptto)+P*(((Cele+1/2)*B)^2)*(Rt-Yo/A)/(2*Wf)
6120     GOTO 6150
6130     Load(Pto)=Load(Pto)+P*(((Cele-1/2)*B)^2)*(Yo/A-Ro)/(2*Wf)
6140     Load(Ptto)=Load(Ptto)+P*(((Cele-1/2)*B)^2)*(Rt-Yo/A)/(2*Wf)
6150    NEXT I
6160    GOTO 10980
6170    Rs=INT(Yo/A)
6180    Celn=Yo-Rs*A
6190    IF Celn<(1/2) THEN 6210
6200    Rs=Rs+1
6210    Re=INT(Yt/A)
6220    Cels=Yt-Re*A
6230    IF Cels<=(1/2) THEN 6250
6240    Re=Re+1
6250    Jo=INT(Xo/B)
6260    IF (Jo*B)<Xo THEN 6690
6270    IF Dir=3 THEN 6290
6280    IF Dir=4 THEN 6490
6290    !
6300    ! Y increasing
6310    !
6320    FOR I=Rs TO Re
6330     Pto=(I)*21+Jo+1
6340     IF I>Rs THEN 6400
6350     IF Celn<(1/2) THEN 6380
6360     Load(Pto)=Load(Pto)+P*(((3/2-Celn)*A)^2)/(2*Hf)
6370     GOTO 6470
6380     Load(Pto)=Load(Pto)+P*(((1/2-Celn)*A)^2)/(2*Hf)
6390     GOTO 6470
6400     IF I=Re THEN 6430
6410     Load(Pto)=Load(Pto)+P*(I*A-Yo)*A/Hf
6420     GOTO 6470
6430     IF Cels>(1/2) THEN 6460
6440     Load(Pto)=Load(Pto)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)/Hf
6450     GOTO 6470
6460     Load(Pto)=Load(Pto)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)/Hf
6470    NEXT I
6480    GOTO 10980
6490    !
6500    ! Y decreasing
6510    !
6520    FOR I=Rs TO Re
```

```
6540     IF I>Rs THEN 6600
6550     IF Celn<(1/2) THEN 6580
6560     Load(Pto)=Load(Pto)+P*(Yt-A*(I-1/4+Celn/2))*(3/2-Celn)*A/Hf
6570     GOTO 6670
6580     Load(Pto)=Load(Pto)+P*(Yt-A*(I+1/4+Celn/2))*(1/2-Celn)*A/Hf
6590     GOTO 6670
6600     IF I=Re THEN 6630
6610     Load(Pto)=Load(Pto)+P*(Yt-I*A)*A/Hf
6620     GOTO 6670
6630     IF Cels>(1/2) THEN 6660
6640     Load(Pto)=Load(Pto)+P*(((Cels+1/2)*A)^2)/(2*Hf)
6650     GOTO 6670
6660     Load(Pto)=Load(Pto)+P*(((Cels-1/2)*A)^2)/(2*Hf)
6670    NEXT I
6680    GOTO 10980
6690    Jt=Jo+1
6700    IF Dir=3 THEN 6720
6710    IF Dir=4 THEN 6980
6720    !
6730    ! Y increasing
6740    !
6750    FOR I=Rs TO Re
6760     Pto=(I)*21+Jo+1
6770     Ptt=Pto+1
6780     IF I>Rs THEN 6860
6790     IF Celn<(1/2) THEN 6830
6800     Load(Pto)=Load(Pto)+P*(((3/2-Celn)*A)^2)*(Xo/A-Jo)/(2*Hf)
6810     Load(Ptt)=Load(Ptt)+P*(((3/2-Celn)*A)^2)*(Jt-Xo/A)/(2*Hf)
6820     GOTO 6960
6830     Load(Pto)=Load(Pto)+P*(((1/2-Celn)*A)^2)*(Xo/A-Jo)/(2*Hf)
6840     Load(Ptt)=Load(Ptt)+P*(((1/2-Celn)*A)^2)*(Jt-Xo/A)/(2*Hf)
6850     GOTO 6960
6860     IF I=Re THEN 6900
6870     Load(Pto)=Load(Pto)+P*(I*A-Yo)*A*(Xo/A-Jo)/Hf
6880     Load(Ptt)=Load(Ptt)+P*(I*A-Yo)*A*(Jt-Xo/A)/Hf
6890     GOTO 6960
6900     IF Cels>(1/2) THEN 6940
6910     Load(Pto)=Load(Pto)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*(Xo/A-Jo)/Hf
6920     Load(Ptt)=Load(Ptt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*(Jt-Xo/A)/Hf
6930     GOTO 6960
6940     Load(Pto)=Load(Pto)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*(Xo/A-Jo)/Hf
6950     Load(Ptt)=Load(Ptt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*(Jt-Xo/A)/Hf
6960    NEXT I
6970    GOTO 10980
6980    !
6990    ! Y decreasing
7000    !
7010    FOR I=Rs TO Re
7020     Pto=(I)*21+Jo+1
7030     Ptt=Pto+1
7040     IF I>Rs THEN 7120
7050     IF Celn<(1/2) THEN 7090
7060     Load(Pto)=Load(Pto)+P*(Yt-A*(I-1/4+Celn/2))*(3/2-Celn)*A*(Xo/A-Jo)/Hf
7070     Load(Ptt)=Load(Ptt)+P*(Yt-A*(I-1/4+Celn/2))*(3/2-Celn)*A*(Jt-Xo/A)/Hf
7080     GOTO 7220
7090     Load(Pto)=Load(Pto)+P*(Yt-A*(I+1/4+Celn/2))*(1/2-Celn)*A*(Xo/A-Jo)/Hf
7100     Load(Ptt)=Load(Ptt)+P*(Yt-A*(I+1/4+Celn/2))*(1/2-Celn)*A*(Jt-Xo/A)/Hf
7110     GOTO 7220
7120     IF I=Re THEN 7160
7130     Load(Pto)=Load(Pto)+P*(Yt-A*I)*A*(Xo/A-Jo)/Hf
7140     Load(Ptt)=Load(Ptt)+P*(Yt-A*I)*A*(Jt-Xo/A)/Hf
7150     GOTO 7220
7160     IF Cels>(1/2) THEN 7200
7170     Load(Pto)=Load(Pto)+P*(((Cels+1/2)*A)^2)*(Xo/A-Jo)/(2*Hf)
7180     Load(Ptt)=Load(Ptt)+P*(((Cels+1/2)*A)^2)*(Jt-Xo/A)/(2*Hf)
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7200      Load(Pto)=Load(Pto)+P*(((Cels-1/2)*A)^2)*(Xo/A-Jo)/(2*Hf)
7210      Load(Ptt)=Load(Ptt)+P*(((Cels-1/2)*A)^2)*(Jt-Xo/A)/(2*Hf)
7220    NEXT I
7230    GOTO 10980
7240    !
7250    ! FRACTIONAL TRIANGULAR LOADING
7260    !
7270    Rs=INT(Yo/A)
7280    Celn=Yo-Rs*A
7290    IF Celn<(1/2) THEN 7310
7300    Rs=Rs+1
7310    Re=INT(Yt/A)
7320    Cels=Yt-Re*A
7330    IF Cels<=(1/2) THEN 7350
7340    Re=Re+1
7350    Ps=INT(Xo/B)
7360    Celw=Xo-Ps*B
7370    IF Celw<(1/2) THEN 7390
7380    Ps=Ps+1
7390    Pe=INT(Xt/B)
7400    Cele=Xt-Pe*B
7410    IF Cele<=(1/2) THEN 7430
7420    Pe=Pe+1
7430    IF Dir=1 THEN 7470
7440    IF Dir=2 THEN 8350
7450    IF Dir=3 THEN 9230
7460    IF Dir=4 THEN 10110
7470    !
7480    ! X increasing
7490    !
7500    FOR I=Rs TO Re
7510     IF I>Rs THEN 7840
7520     FOR J=Ps TO Pe
7530       Pt=(I)*21+J+1
7540        IF J>Ps THEN 7660
7550        IF Celn<(1/2) THEN 7610
7560        IF Celw<(1/2) THEN 7590
7570        Load(Pt)=Load(Pt)+P*((B*(3/2-Celw))^2)*A*(3/2-Celn)/(2*Wf)
7580        GOTO 7820
7590        Load(Pt)=Load(Pt)+P*((B*(1/2-Celw))^2)*A*(3/2-Celn)/(2*Wf)
7600        GOTO 7820
7610        IF Celw<(1/2) THEN 7640
7620        Load(Pt)=Load(Pt)+P*((B*(3/2-Celw))^2)*A*(1/2-Celn)/(2*Wf)
7630        GOTO 7820
7640        Load(Pt)=Load(Pt)+P*((B*(1/2-Celw))^2)*A*(1/2-Celn)/(2*Wf)
7650        GOTO 7820
7660        IF J=Pe THEN 7720
7670        IF Celn<(1/2) THEN 7700
7680        Load(Pt)=Load(Pt)+P*(J*B-Xo)*B*A*(3/2-Celn)/Wf
7690        GOTO 7820
7700        Load(Pt)=Load(Pt)+P*(J*B-Xo)*B*A*(1/2-Celn)/Wf
7710        GOTO 7820
7720        IF Celn<(1/2) THEN 7780
7730        IF Cele>(1/2) THEN 7760
7740        Load(Pt)=Load(Pt)+P*(B*(J-1/4+Cele/2)-Xo)*B*(1/2+Cele)*A*(3/2-Celn)/
Wf
7750        GOTO 7820
7760        Load(Pt)=Load(Pt)+P*(B*(J-3/4+Cele/2)-Xo)*B*(Cele-1/2)*A*(3/2-Celn)/
Wf
7770        GOTO 7820
7780        IF Cele>(1/2) THEN 7810
7790        Load(Pt)=Load(Pt)+P*(B*(J-1/4+Cele/2)-Xo)*B*(1/2+Cele)*A*(1/2-Celn)/
Wf
7800        GOTO 7820
7810        Load(Pt)=Load(Pt)+P*(B*(J-3/4+Cele/2)-Xo)*B*(Cele-1/2)*A*(1/2-Celn)/
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7820      NEXT J
7830      GOTO 8330
7840      IF I=Re THEN 8020
7850      FOR J=Ps TO Pe
7860         Pt=(I)*21+J+1
7870         IF J>Ps THEN 7930
7880         IF Celw<(1/2) THEN 7910
7890         Load(Pt)=Load(Pt)+P*((B*(3/2-Celw))^2)*A/(2*Wf)
7900         GOTO 8000
7910         Load(Pt)=Load(Pt)+P*((B*(1/2-Celw))^2)*A/(2*Wf)
7920         GOTO 8000
7930         IF J=Pe THEN 7960
7940         Load(Pt)=Load(Pt)+P*(J*B-Xo)*A*B/Wf
7950         GOTO 8000
7960         IF Cele>(1/2) THEN 7990
7970         Load(Pt)=Load(Pt)+P*(B*(J-1/4+Cele/2)-Xo)*B*(Cele+1/2)*A/Wf
7980         GOTO 8000
7990         Load(Pt)=Load(Pt)+P*(B*(J-3/4+Cele/2)-Xo)*B*(Cele-1/2)*A/Wf
8000      NEXT J
8010      GOTO 8330
8020      FOR J=Ps TO Pe
8030         Pt=(I)*21+J+1
8040         IF J>Ps THEN 8160
8050         IF Cels>(1/2) THEN 8110
8060         IF Celw<(1/2) THEN 8090
8070         Load(Pt)=Load(Pt)+P*((B*(3/2-Celw))^2)*A*(Cels+1/2)/(2*Wf)
8080         GOTO 8320
8090         Load(Pt)=Load(Pt)+P*((B*(1/2-Celw))^2)*A*(Cels+1/2)/(2*Wf)
8100         GOTO 8320
8110         IF Celw<(1/2) THEN 8140
8120         Load(Pt)=Load(Pt)+P*((B*(3/2-Celw))^2)*A*(Cels-1/2)/(2*Wf)
8130         GOTO 8320
8140         Load(Pt)=Load(Pt)+P*((B*(1/2-Celw))^2)*A*(Cels-1/2)/(2*Wf)
8150         GOTO 8320
8160         IF J=Pe THEN 8220
8170         IF Cels>(1/2) THEN 8200
8180         Load(Pt)=Load(Pt)+P*(J*B-Xo)*B*A*(Cels+1/2)/Wf
8190         GOTO 8320
8200         Load(Pt)=Load(Pt)+P*(J*B-Xo)*B*A*(Cels-1/2)/Wf
8210         GOTO 8320
8220         IF Cels>(1/2) THEN 8280
8230         IF Cele>(1/2) THEN 8260
8240         Load(Pt)=Load(Pt)+P*(B*(J-1/4+Cele/2)-Xo)*B*(Cele+1/2)*A*(Cels+1/2)/
Wf
8250         GOTO 8320
8260         Load(Pt)=Load(Pt)+P*(B*(J-3/4+Cele/2)-Xo)*B*(Cele-1/2)*A*(Cels+1/2)/
Wf
8270         GOTO 8320
8280         IF Cele>(1/2) THEN 8310
8290         Load(Pt)=Load(Pt)+P*(B*(J-1/4+Cele/2)-Xo)*B*(Cele+1/2)*A*(Cels-1/2)/
Wf
8300         GOTO 8320
8310         Load(Pt)=Load(Pt)+P*(B*(J-3/4+Cele/2)-Xo)*B*(Cele-1/2)*A*(Cels-1/2)/
Wf
8320      NEXT J
8330    NEXT I
8340    GOTO 10980
8350    !
8360    ! X decreasing
8370    !
8380    FOR I=Rs TO Re
8390      IF I>Rs THEN 8720
8400      FOR J=Ps TO Pe
8410         Pt=(I)*21+J+1
8420         IF J>Ps THEN 8540
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8430        IF Celn<(1/2) THEN 8470
8440        IF Celw<(1/2) THEN 8470
8450        Load(Pt)=Load(Pt)+P*(Xt-B*(J-1/4+Celw/2))*B*(3/2-Celw)*A*(3/2-Celn)/
Wf
8460        GOTO 8700
8470        Load(Pt)=Load(Pt)+P*(Xt-B*(J+1/4+Celw/2))*B*(1/2-Celw)*A*(3/2-Celn)/
Wf
8480        GOTO 8700
8490        IF Celw<(1/2) THEN 8520
8500        Load(Pt)=Load(Pt)+P*(Xt-B*(J-1/4+Celw/2))*B*(3/2-Celw)*A*(1/2-Celn)/
Wf
8510        GOTO 8700
8520        Load(Pt)=Load(Pt)+P*(Xt-B*(J+1/4+Celw/2))*B*(1/2-Celw)*A*(1/2-Celn)/
Wf
8530        GOTO 8700
8540        IF J=Pe THEN 8600
8550        IF Celn<(1/2) THEN 8580
8560        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A*(3/2-Celn)/Wf
8570        GOTO 8700
8580        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A*(1/2-Celn)/Wf
8590        GOTO 8700
8600        IF Celn<(1/2) THEN 8660
8610        IF Cele>(1/2) THEN 8640
8620        Load(Pt)=Load(Pt)+P*((B*(1/2+Cele))^2)*A*(3/2-Celn)/(2*Wf)
8630        GOTO 8700
8640        Load(Pt)=Load(Pt)+P*((B*(Cele-1/2))^2)*A*(3/2-Celn)/(2*Wf)
8650        GOTO 8700
8660        IF Cele>(1/2) THEN 8690
8670        Load(Pt)=Load(Pt)+P*((B*(1/2+Cele))^2)*A*(1/2-Celn)/(2*Wf)
8680        GOTO 8700
8690        Load(Pt)=Load(Pt)+P*((B*(Cele-1/2))^2)*A*(1/2-Celn)/(2*Wf)
8700     NEXT J
8710     GOTO 9210
8720     IF I=Re THEN 8900
8730     FOR J=Ps TO Pe
8740        Pt=(I)*21+J+1
8750        IF J>Ps THEN 8810
8760        IF Cels<(1/2) THEN 8790
8770        Load(Pt)=Load(Pt)+P*(Xt-B*(J-1/4+Celw/2))*B*(3/2-Celw)*A/Wf
8780        GOTO 8880
8790        Load(Pt)=Load(Pt)+P*(Xt-B*(J+1/4+Celw/2))*B*(1/2-Celw)*A/Wf
8800        GOTO 8880
8810        IF J=Pe THEN 8840
8820        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A/Wf
8830        GOTO 8880
8840        IF Cele>(1/2) THEN 8870
8850        Load(Pt)=Load(Pt)+P*((B*(Cele+1/2))^2)*A/(2*Wf)
8860        GOTO 8880
8870        Load(Pt)=Load(Pt)+P*((B*(Cele-1/2))^2)*A/(2*Wf)
8880     NEXT J
8890     GOTO 9210
8900     FOR J=Ps TO Pe
8910        Pt=(I)*21+J+1
8920        IF J>Ps THEN 9040
8930        IF Cels>(1/2) THEN 8990
8940        IF Clew<(1/2) THEN 8970
8950        Load(Pt)=Load(Pt)+P*(Xt-B*(J-1/4+Celw/2))*B*(3/2-Celw)*A*(1/2+Cels)/
Wf
8960        GOTO 9200
8970        Load(Pt)=Load(Pt)+P*(Xt-B*(J+1/4+Celw/2))*B*(1/2-Celw)*A*(1/2+Cels)/
Wf
8980        GOTO 9200
8990        IF Celw<(1/2) THEN 9020
9000        Load(Pt)=Load(Pt)+P*(Xt-B*(J-1/4+Celw/2))*B*(3/2-Celw)*A*(Cels-1/2)/
Wf
9010        GOTO 9200
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9020        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A*(Cels+1/2)*B*(1/2-Celw)*A*(Cels-1/2)/
Wf
9030        GOTO 9200
9040        IF J=Pe THEN 9100
9050        IF Cels>(1/2) THEN 9080
9060        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A*(Cels+1/2)/Wf
9070        GOTO 9200
9080        Load(Pt)=Load(Pt)+P*(Xt-B*J)*B*A*(Cels-1/2)/Wf
9090        GOTO 9200
9100        IF Cels>(1/2) THEN 9160
9110        IF Cele>(1/2) THEN 9140
9120        Load(Pt)=Load(Pt)+P*((B*(Cele+1/2))^2)*A*(Cels+1/2)/(2*Wf)
9130        GOTO 9200
9140        Load(Pt)=Load(Pt)+P*((B*(Cele-1/2))^2)*A*(Cels+1/2)/(2*Wf)
9150        GOTO 9200
9160        IF Cele>(1/2) THEN 9190
9170        Load(Pt)=Load(Pt)+P*((B*(Cele+1/2))^2)*A*(Cels-1/2)/(2*Wf)
9180        GOTO 9200
9190        Load(Pt)=Load(Pt)+P*((B*(Cele-1/2))^2)*A*(Cels-1/2)/(2*Wf)
9200     NEXT J
9210    NEXT I
9220    GOTO 10980
9230    !
9240    ! Y increasing
9250    !
9260    FOR I=Rs TO Re
9270     IF I>Rs THEN 9600
9280     FOR J=Ps TO Pe
9290        Pt=(I)*21+J+1
9300        IF J>Ps THEN 9420
9310        IF Celn<(1/2) THEN 9370
9320        IF Celw<(1/2) THEN 9350
9330        Load(Pt)=Load(Pt)+P*((A*(3/2-Celn))^2)*B*(3/2-Celw)/(2*Hf)
9340        GOTO 9580
9350        Load(Pt)=Load(Pt)+P*((A*(3/2-Celn))^2)*B*(1/2-Celw)/(2*Hf)
9360        GOTO 9580
9370        IF Celw<(1/2) THEN 9400
9380        Load(Pt)=Load(Pt)+P*((A*(1/2-Celn))^2)*B*(3/2-Celw)/(2*Hf)
9390        GOTO 9580
9400        Load(Pt)=Load(Pt)+P*((A*(1/2-Celn))^2)*B*(1/2-Celw)/(2*Hf)
9410        GOTO 9580
9420        IF J=Pe THEN 9480
9430        IF Celn<(1/2) THEN 9460
9440        Load(Pt)=Load(Pt)+P*((A*(3/2-Celn))^2)*B/(2*Hf)
9450        GOTO 9580
9460        Load(Pt)=Load(Pt)+P*((A*(1/2-Celn))^2)*B/(2*Hf)
9470        GOTO 9580
9480        IF Celn<(1/2) THEN 9540
9490        IF Cele>(1/2) THEN 9520
9500        Load(Pt)=Load(Pt)+P*((A*(3/2-Celn))^2)*B*(1/2+Cele)/(2*Hf)
9510        GOTO 9580
9520        Load(Pt)=Load(Pt)+P*((A*(3/2-Celn))^2)*B*(Cele-1/2)/(2*Hf)
9530        GOTO 9580
9540        IF Cele>(1/2) THEN 9570
9550        Load(Pt)=Load(Pt)+P*((A*(1/2-Celn))^2)*B*(1/2+Cele)/(2*Hf)
9560        GOTO 9580
9570        Load(Pt)=Load(Pt)+P*((A*(1/2-Celn))^2)*B*(Cele-1/2)/(2*Hf)
9580     NEXT J
9590     GOTO 10090
9600     IF I=Re THEN 9780
9610     FOR J=Ps TO Pe
9620        Pt=(I)*21+J+1
9630        IF J>Ps THEN 9690
9640        IF Celw<(1/2) THEN 9670
9650        Load(Pt)=Load(Pt)+P*(I*A-Yo)*A*B*(3/2-Celw)/Hf
9660        GOTO 9760
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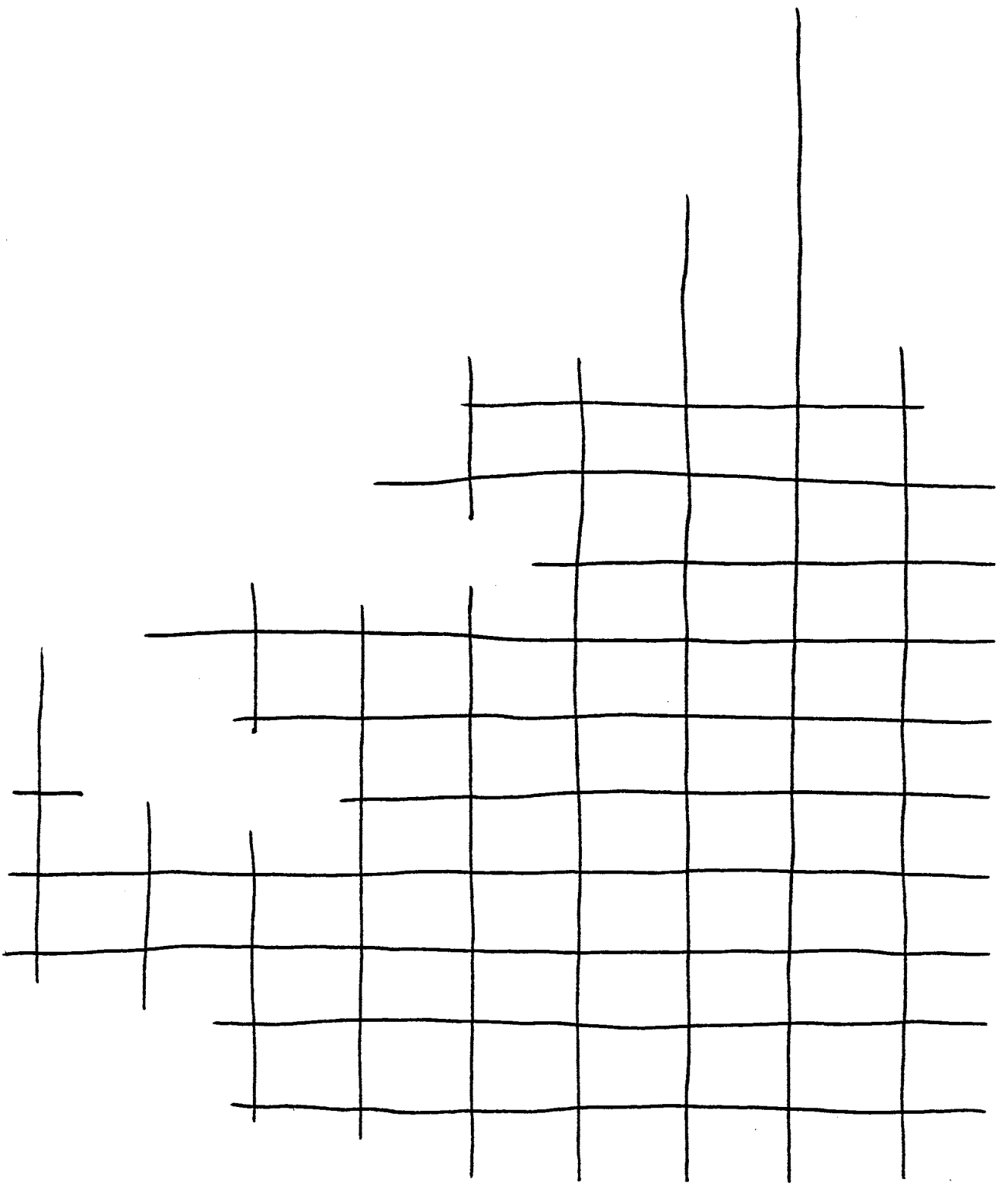
9680        GOTO 9760
9690        IF J=Pe THEN 9720
9700        Load(Pt)=Load(Pt)+P*(I*A-Yo)*A*B/Hf
9710        GOTO 9760
9720        IF Cele>(1/2) THEN 9750
9730        Load(Pt)=Load(Pt)+P*(I*A-Yo)*A*B*(Cele+1/2)/Hf
9740        GOTO 9760
9750        Load(Pt)=Load(Pt)+P*(I*A-Yo)*A*B*(Cele-1/2)/Hf
9760     NEXT J
9770     GOTO 10090
9780     FOR J=Ps TO Pe
9790        Pt=(I)*21+J+1
9800        IF J>Ps THEN 9920
9810        IF Cels>(1/2) THEN 9870
9820        IF Celw<(1/2) THEN 9850
9830        Load(Pt)=Load(Pt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*B*(3/2-Celw)/
Hf
9840        GOTO 10080
9850        Load(Pt)=Load(Pt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*B*(1/2-Celw)/
Hf
9860        GOTO 10080
9870        IF Celw<(1/2) THEN 9900
9880        Load(Pt)=Load(Pt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*B*(3/2-Celw)/
Hf
9890        GOTO 10080
9900        Load(Pt)=Load(Pt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*B*(1/2-Celw)/
Hf
9910        GOTO 10080
9920        IF J=Pe THEN 9980
9930        IF Cels>(1/2) THEN 9960
9940        Load(Pt)=Load(Pt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*B/Hf
9950        GOTO 10080
9960        Load(Pt)=Load(Pt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*B/Hf
9970        GOTO 10080
9980        IF Cels>(1/2) THEN 10040
9990        IF Cele>(1/2) THEN 10020
10000       Load(Pt)=Load(Pt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*B*(Cele+1/2)/
Hf
10010       GOTO 10080
10020       Load(Pt)=Load(Pt)+P*(A*(I-1/4+Cels/2)-Yo)*A*(Cels+1/2)*B*(Cele-1/2)/
Hf
10030       GOTO 10080
10040       IF Cele>(1/2) THEN 10070
10050       Load(Pt)=Load(Pt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*B*(Cele+1/2)/
Hf
10060       GOTO 10080
10070       Load(Pt)=Load(Pt)+P*(A*(I-3/4+Cels/2)-Yo)*A*(Cels-1/2)*B*(Cele-1/2)/
Hf
10080    NEXT J
10090    NEXT I
10100    GOTO 10980
10110    !
10120    ! Y decreasing
10130    !
10140    FOR I=Rs TO Re
10150     IF I>Rs THEN 10480
10160     FOR J=Ps TO Pe
10170        Pt=(I)*21+J+1
10180        IF J>Ps THEN 10300
10190        IF Celn<(1/2) THEN 10250
10200        IF Celw<(1/2) THEN 10230
10210        Load(Pt)=Load(Pt)+P*(Yt-A*(I-1/4+Celn/2))*A*(3/2-Celn)*B*(3/2-Celw)/
Hf
10220        GOTO 10460
10230        Load(Pt)=Load(Pt)+P*(Yt-A*(I-1/4+Celn/2))*A*(3/2-Celn)*B*(1/2-Celw)/
```

```
10240       GOTO 10460
10250       IF Celw<(1/2) THEN 10280
10260       Load(Pt)=Load(Pt)+P*(Yt-A*(I+1/4+Celn/2))*A*(1/2-Celn)*B*(3/2-Celw)/
Hf
10270       GOTO 10460
10280       Load(Pt)=Load(Pt)+P*(Yt-A*(I+1/4+Celn/2))*A*(1/2-Celn)*B*(1/2-Celw)/
Hf
10290       GOTO 10460
10300       IF J=Pe THEN 10360
10310       IF Celn<(1/2) THEN 10340
10320       Load(Pt)=Load(Pt)+P*(Yt-A*(I-1/4+Celn/2))*A*(3/2-Celn)*B/Hf
10330       GOTO 10460
10340       Load(Pt)=Load(Pt)+P*(Yt-A*(I+1/4+Celn/2))*A*(1/2-Celn)*B/Hf
10350       GOTO 10460
10360       IF Celn<(1/2) THEN 10420
10370       IF Cele>(1/2) THEN 10400
10380       Load(Pt)=Load(Pt)+P*(Yt-A*(I-1/4+Celn/2))*A*(3/2-Celn)*B*(Cele+1/2)/
Hf
10390       GOTO 10460
10400       Load(Pt)=Load(Pt)+P*(Yt-A*(I-1/4+Celn/2))*A*(3/2-Celn)*B*(Cele-1/2)/
Hf
10410       GOTO 10460
10420       IF Cele>(1/2) THEN 10450
10430       Load(Pt)=Load(Pt)+P*(Yt-A*(I+1/4+Celn/2))*A*(1/2-Celn)*B*(Cele+1/2)/
Hf
10440       GOTO 10460
10450       Load(Pt)=Load(Pt)+P*(Yt-A*(I+1/4+Celn/2))*A*(1/2-Celn)*B*(Cele-1/2)/
Hf
10460    NEXT J
10470    GOTO 10970
10480    IF I=Re THEN 10660
10490    FOR J=Ps TO Pe
10500       Pt=(I)*21+J+1
10510       IF J>Ps THEN 10570
10520       IF Celw<(1/2) THEN 10550
10530       Load(Pt)=Load(Pt)+P*(Yt-I*A)*A*B*(3/2-Celw)/Hf
10540       GOTO 10640
10550       Load(Pt)=Load(Pt)+P*(Yt-I*A)*A*B*(1/2-Celw)/Hf
10560       GOTO 10640
10570       IF J=Pe THEN 10600
10580       Load(Pt)=Load(Pt)+P*(Yt-I*A)*A*B/Hf
10590       GOTO 10640
10600       IF Cele>(1/2) THEN 10630
10610       Load(Pt)=Load(Pt)+P*(Yt-I*A)*A*B*(Cele+1/2)/Hf
10620       GOTO 10640
10630       Load(Pt)=Load(Pt)+P*(Yt-I*A)*A*B*(Cele-1/2)/Hf
10640    NEXT J
10650    GOTO 10970
10660    FOR J=Ps TO Pe
10670       Pt=(I)*21+J+1
10680       IF J>Ps THEN 10800
10690       IF Cels>(1/2) THEN 10750
10700       IF Celw<(1/2) THEN 10730
10710       Load(Pt)=Load(Pt)+P*((A*(1/2+Cels))^2)*B*(3/2-Celw)/(2*Hf)
10720       GOTO 10960
10730       Load(Pt)=Load(Pt)+P*((A*(1/2+Cels))^2)*B*(1/2-Celw)/(2*Hf)
10740       GOTO 10960
10750       IF Celw<(1/2) THEN 10780
10760       Load(Pt)=Load(Pt)+P*((A*(Cels-1/2))^2)*B*(3/2-Celw)/(2*Hf)
10770       GOTO 10960
10780       Load(Pt)=Load(Pt)+P*((A*(Cels-1/2))^2)*B*(1/2-Celw)/(2*Hf)
10790       GOTO 10960
10800       IF J=Pe THEN 10860
10810       IF Cels>(1/2) THEN 10840
10820       Load(Pt)=Load(Pt)+P*((A*(1/2+Cels))^2)*B/(2*Hf)
```

```
10830       GOTO 10960
10840       Load(Pt)=Load(Pt)+P*((A*(Cels-1/2))^2)*B/(2*Hf)
10850       GOTO 10960
10860       IF Cels>(1/2) THEN 10920
10870       IF Cele>(1/2) THEN 10900
10880       Load(Pt)=Load(Pt)+P*((A*(1/2+Cels))^2)*B*(1/2+Cele)/(2*Hf)
10890       GOTO 10960
10900       Load(Pt)=Load(Pt)+P*((A*(1/2+Cels))^2)*B*(Cele-1/2)/(2*Hf)
10910       GOTO 10960
10920       IF Cele>(1/2) THEN 10950
10930       Load(Pt)=Load(Pt)+P*((A*(Cels-1/2))^2)*B*(1/2+Cele)/(2*Hf)
10940       GOTO 10960
10950       Load(Pt)=Load(Pt)+P*((A*(Cels-1/2))^2)*B*(Cele-1/2)/(2*Hf)
10960     NEXT J
10970   NEXT I
10980 NEXT Num
10990 Ctr=0
11000 FOR I=1 TO 441
11010     Ctr=Ctr+1
11020     IF I>21 THEN 11120
11030     IF Ctr>1 THEN 11060
11040     Load(I)=Load(I)/((B/2)*(A/2))
11050     GOTO 11220
11060     IF Ctr=21 THEN 11090
11070     Load(I)=Load(I)/(B*(A/2))
11080     GOTO 11220
11090     Load(I)=Load(I)/((B/2)*(A/2))
11100     Ctr=0
11110     GOTO 11220
11120     IF I>420 THEN 11030
11130     IF Ctr>1 THEN 11160
11140     Load(I)=Load(I)/((B/2)*A)
11150     GOTO 11220
11160     IF Ctr=21 THEN 11190
11170     Load(I)=Load(I)/(A*B)
11180     GOTO 11220
11190     Load(I)=Load(I)/((B/2)*A)
11200     Ctr=0
11210     GOTO 11220
11220 NEXT I
11230 !
11240 ! DATA ECHO
11250 !
11260 PRINT "DATA ECHO"
11270 PRINT
11280 PRINT "WOULD YOU LIKE A HARD COPY?"
11290 PRINT
11300 PRINT "1=YES"
11310 PRINT "0=NO"
11320 INPUT Hc
11330 OUTPUT KBD;"K"; ! CLEAR SCREEN
11340 IF Hc=0 THEN PRINTER IS CRT
11350 IF Hc=1 THEN PRINTER IS PRT
11360 IF Lc=0 THEN 11380
11370 IF Hc=0 THEN 12170
11380 PRINT "PLATE DATA ECHO"
11390 PRINT
11400 PRINT
11410 PRINT USING """HEIGHT"",6X,M3D.DD,"" FT""";H
11420 PRINT USING """WIDTH"",7X,M3D.DD,"" FT""";W
11430 PRINT USING """THICKNESS"",3X,M3D.DD,"" FT""";T
11440 PRINT
11450 Eo=E/144 ! CONVERT BACK TO KSI
11460 PRINT USING """MODULUS OF ELASTICITY"",3X,MD.DDE,"" KSI""";Eo
11470 PRINT USING """POISSON'S RATIO"",9X,D.DD";Pr
11480 PRINT
```

```
11490 PRINT
11500 PRINT "EDGE SUPPORT CONDITIONS"
11510 PRINT
11520 FOR I=1 TO 4
11530    IF I=1 THEN Con=Nec
11540    IF I=2 THEN Con=Eec
11550    IF I=3 THEN Con=Sec
11560    IF I=4 THEN Con=Wec
11570    IF Con=1 THEN Sup$="FIXED"
11580    IF Con=2 THEN Sup$="SIMPLE"
11590    IF Con=3 THEN Sup$="FREE"
11600    IF I=1 THEN PRINT USING """NORTH EDGE"",5X,K";Sup$
11610    IF I=2 THEN PRINT USING """EAST EDGE"",6X,K";Sup$
11620    IF I=3 THEN PRINT USING """SOUTH EDGE"",5X,K";Sup$
11630    IF I=4 THEN PRINT USING """WEST EDGE"",6X,K";Sup$
11640 NEXT I
11650 PRINT
11660 PRINT
11670 PRINT "LOAD DATA"
11680 PRINT
11690 PRINT "NUMBER OF LOADS=    ";N
11700 PRINT
11710 FOR I=1 TO N
11720    PRINT "LOAD";I
11730    PRINT
11740    IF Lecho(1,I)=1 THEN PRINT "POINT LOAD"
11750    IF Lecho(1,I)>1 THEN 11770
11760    GOTO 11970
11770    IF Lecho(1,I)=2 THEN PRINT "UNIFORM LOAD"
11780    IF Lecho(1,I)>2 THEN 11800
11790    GOTO 11910
11800    PRINT "TRIANGULAR LOAD"
11810    PRINT
11820    PRINT "STARTING POINT (FT)     ENDING POINT (FT)     MAGNITUDE (KSF,K/F
)  DIRECTION"
11830    PRINT "    Xo        Yo            Xt        Yt"
11840    IF Dir=1 THEN Dir$="X increasing"
11850    IF Dir=2 THEN Dir$="X decreasing"
11860    IF Dir=3 THEN Dir$="Y increasing"
11870    IF Dir=4 THEN Dir$="Y decreasing"
11880    PRINT USING "1X,3D.DD,3X,3D.DD,8X,3D.DD,3X,3D.DD,10X,MD.DDE,9X,K";Lecho
(2,I),Lecho(3,I),Lecho(4,I),Lecho(5,I),Lecho(6,I),Dir$
11890    PRINT
11900    GOTO 12020
11910    PRINT
11920    PRINT "STARTING POINT (FT)     ENDING POINT (FT)     MAGNITUDE (KSF,K/F
)"
11930    PRINT "    Xo        Yo            Xt        Yt"
11940    PRINT USING "1X,3D.DD,3X,3D.DD,8X,3D.DD,3X,3D.DD,10X,MD.DDE";Lecho(2,I)
,Lecho(3,I),Lecho(4,I),Lecho(5,I),Lecho(6,I)
11950    PRINT
11960    GOTO 12020
11970    PRINT
11980    PRINT "  LOCATION (FT)    MAGNITUDE (K)"
11990    PRINT "    X         Y"
12000    PRINT USING "1X,3D.DD,3X,3D.DD,4X,MD.2DE";Lecho(2,I),Lecho(3,I),Lecho(6
,I)
12010    PRINT
12020 NEXT I
12030 PRINTER IS CRT
12040 IF Lc=1 THEN 12170
12050 PRINT "IS EVERYTHING CORRECT?"
12060 PRINT
12070 PRINT "1=YES"
12080 PRINT "0=NO"
12090 INPUT Ec
```

```
12100 OUTPUT KBD;"R";
12110 IF Ec=1 THEN 12150
12120 MAT Load= (0)
12130 MAT Lecho= (0)
12140 GOTO 140
12150 Lc=1
12160 GOTO 11260
12170 !
12180 ! GO TO PLATE_DEF PROGRAM TO CALCULATE DEFLECTIONS OF THE PLATE
12190 !
12200 LOAD "PLATE_DEF:CS80,700,1"
12210 END
```



```
10     ! RE-STORE "PLATE_DEF:CS80,700,1"
20     !
30     ! THIS PROGRAM IS FOR DETERMINING THE DEFLECTIONS OF THE PLATE
40     !
50     MASS STORAGE IS ":CS80,700,0"
60     OPTION BASE 1
70     COM /Matrices/ REAL Load(*),Def(*),Mx(*),My(*)
80     COM /Variables/ REAL A,B,H,W,E,Pr,T,D,INTEGER Nec,Eec,Wec,Sec
90     !
100    ! DETERMINE LOAD OPERATOR
110    !
120    PRINT "DETERMINING LOAD OPERATOR"
130    Row=1
140    ALLOCATE REAL Op(441,50),INTEGER Bk(441,50)
150    Ctr=0
160    FOR I=1 TO 441
170       IF Ctr<>0 THEN 190
180       PRINT "ROW";Row
190       Ctr=Ctr+1
200       !
210       ! ROW 1 OF GRID POINTS
220       !
230       IF I>21 THEN 2440
240       IF Nec=3 THEN 280
250       IF Ctr<21 THEN 270
260       Ctr=0
270       GOTO 21450
280       IF Ctr>1 THEN 440
290       IF Wec=3 THEN 310
300       GOTO 21450
310       Bk(I,1)=I
320       Bk(I,2)=I+1
330       Bk(I,3)=I+2
340       Bk(I,4)=I+21
350       Bk(I,5)=I+22
360       Bk(I,6)=I+42
370       Op(I,1)=2.9/(B^4)+1.7/((B^2)*(A^2))+2.9/(A^4)
380       Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
390       Op(I,3)=1/(B^4)
400       Op(I,4)=-4/(A^4)-1.9/((B^2)*(A^2))
410       Op(I,5)=2/((B^2)*(A^2))
420       Op(I,6)=1/(A^4)
430       GOTO 21450
440       IF Ctr>2 THEN 900
450       IF Wec=3 THEN 730
460       Bk(I,1)=I
470       Bk(I,2)=I+1
480       Bk(I,3)=I+2
490       Bk(I,4)=I+21
500       Bk(I,5)=I+22
510       Bk(I,6)=I+42
520       IF Sec=3 THEN 630
530       IF Wec=2 THEN 560
540       Op(I,1)=7/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
550       GOTO 570
560       Op(I,1)=5/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
570       Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
580       Op(I,3)=1/(B^4)
590       Op(I,4)=-4/(A^4)-4/((B^2)*(A^2))
600       Op(I,5)=2/((B^2)*(A^2))
610       Op(I,6)=1/(A^4)
```

```
630       IF Wec=2 THEN 660
640       Op(I,1)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
650       GOTO 670
660       Op(I,1)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
670       Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
680       Op(I,3)=1/(B^4)
690       Op(I,4)=-8/(A^4)-8/((B^2)*(A^2))
700       Op(I,5)=4/((B^2)*(A^2))
710       Op(I,6)=2/(A^4)
720       GOTO 21450
730       Bk(I,1)=I-1
740       Bk(I,2)=I
750       Bk(I,3)=I+1
760       Bk(I,4)=I+2
770       Bk(I,5)=I+20
780       Bk(I,6)=I+21
790       Bk(I,7)=I+22
800       Bk(I,8)=I+42
810       Op(I,1)=-2.95/(B^4)-1.9/((B^2)*(A^2))
820       Op(I,2)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
830       Op(I,3)=-4/(B^4)-1.9/((B^2)*(A^2))
840       Op(I,4)=1/(B^4)
850       Op(I,5)=2/((B^2)*(A^2))
860       Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
870       Op(I,7)=2/((B^2)*(A^2))
880       Op(I,8)=1/(A^4)
890       GOTO 21450
900       IF Ctr>3 THEN 1190
910       IF Wec=3 THEN 1200
920       Bk(I,1)=I-1
930       Bk(I,2)=I
940       Bk(I,3)=I+1
950       Bk(I,4)=I+2
960       Bk(I,5)=I+20
970       Bk(I,6)=I+21
980       Bk(I,7)=I+22
990       Bk(I,8)=I+42
1000      IF Sec=3 THEN 1100
1010      Op(I,1)=-4/(B^4)-1.9/((B^2)*(A^2))
1020      Op(I,2)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
1030      Op(I,3)=-4/(B^4)-1.9/((B^2)*(A^2))
1040      Op(I,4)=1/(B^4)
1050      Op(I,5)=2/((B^2)*(A^2))
1060      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
1070      Op(I,7)=2/((B^2)*(A^2))
1080      Op(I,8)=1/(A^4)
1090      GOTO 21450
1100      Op(I,1)=-4/(B^4)-4/((B^2)*(A^2))
1110      Op(I,2)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
1120      Op(I,3)=-4/(B^4)-4/((B^2)*(A^2))
1130      Op(I,4)=1/(B^4)
1140      Op(I,5)=4/((B^2)*(A^2))
1150      Op(I,6)=-8/(A^4)-8/((B^2)*(A^2))
1160      Op(I,7)=4/((B^2)*(A^2))
1170      Op(I,8)=2/(A^4)
1180      GOTO 21450
1190      IF Ctr>18 THEN 1490
1200      Bk(I,1)=I-2
1210      Bk(I,2)=I-1
1220      Bk(I,3)=I
1230      Bk(I,4)=I+1
1240      Bk(I,5)=I+2
1250      Bk(I,6)=I+20
1260      Bk(I,7)=I+21
1270      Bk(I,8)=I+22
```

```
1280      Bk(I,7)=I+42
1290      Op(I,1)=1/(B^4)
1300      IF Sec=3 THEN 1400
1310      Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
1320      Op(I,3)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
1330      Op(I,4)=-4/(B^4)-1.9/((B^2)*(A^2))
1340      Op(I,5)=1/(B^4)
1350      Op(I,6)=2/((B^2)*(A^2))
1360      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
1370      Op(I,8)=2/((B^2)*(A^2))
1380      Op(I,9)=1/(A^4)
1390      GOTO 21450
1400      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
1410      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
1420      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
1430      Op(I,5)=1/(B^4)
1440      Op(I,6)=4/((B^2)*(A^2))
1450      Op(I,7)=-8/(A^4)-8/((B^2)*(A^2))
1460      Op(I,8)=4/((B^2)*(A^2))
1470      Op(I,9)=2/(A^4)
1480      GOTO 21450
1490      IF Ctr>19 THEN 1780
1500      IF Eec=3 THEN 1200
1510      Bk(I,1)=I-2
1520      Bk(I,2)=I-1
1530      Bk(I,3)=I
1540      Bk(I,4)=I+1
1550      Bk(I,5)=I+20
1560      Bk(I,6)=I+21
1570      Bk(I,7)=I+22
1580      Bk(I,8)=I+42
1590      IF Sec=3 THEN 1690
1600      Op(I,1)=1/(B^4)
1610      Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
1620      Op(I,3)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
1630      Op(I,4)=-4/(B^4)-1.9/((B^2)*(A^2))
1640      Op(I,5)=2/((B^2)*(A^2))
1650      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
1660      Op(I,7)=2/((B^2)*(A^2))
1670      Op(I,8)=1/(A^4)
1680      GOTO 21450
1690      Op(I,1)=1/(B^4)
1700      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
1710      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
1720      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
1730      Op(I,5)=4/((B^2)*(A^2))
1740      Op(I,6)=-8/(A^4)-8/((B^2)*(A^2))
1750      Op(I,7)=4/((B^2)*(A^2))
1760      Op(I,8)=2/(A^4)
1770      GOTO 21450
1780      IF Ctr>20 THEN 2240
1790      IF Eec=3 THEN 2070
1800      Bk(I,1)=I-2
1810      Bk(I,2)=I-1
1820      Bk(I,3)=I
1830      Bk(I,4)=I+20
1840      Bk(I,5)=I+21
1850      Bk(I,6)=I+42
1860      IF Sec=3 THEN 1970
1870      Op(I,1)=1/(B^4)
1880      Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
1890      IF Eec=2 THEN 1920
1900      Op(I,3)=7/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
1910      GOTO 1930
1920      Op(I,3)=5/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
1930      Op(I,4)=2/((B^2)*(A^2))
```

```
1940      Op(I,5)=-4/(A^4)-4/((B^2)*(A^2))
1950      Op(I,6)=1/(A^4)
1960      GOTO 21450
1970      Op(I,1)=1/(B^4)
1980      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
1990      IF Eec=2 THEN 2020
2000      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
2010      GOTO 2030
2020      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
2030      Op(I,4)=4/((B^2)*(A^2))
2040      Op(I,5)=-8/(A^4)-8/((B^2)*(A^2))
2050      Op(I,6)=2/(A^4)
2060      GOTO 21450
2070      Bk(I,1)=I-2
2080      Bk(I,2)=I-1
2090      Bk(I,3)=I
2100      Bk(I,4)=I+1
2110      Bk(I,5)=I+20
2120      Bk(I,6)=I+21
2130      Bk(I,7)=I+22
2140      Bk(I,8)=I+42
2150      Op(I,1)=1/(B^4)
2160      Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
2170      Op(I,3)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
2180      Op(I,4)=-2.95/(B^4)-1.9/((B^2)*(A^2))
2190      Op(I,5)=2/((B^2)*(A^2))
2200      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
2210      Op(I,7)=2/((B^2)*(A^2))
2220      Op(I,8)=1/(A^4)
2230      GOTO 21450
2240      IF Eec=3 THEN 2270
2250      Ctr=0
2260      GOTO 21450
2270      Bk(I,1)=I-2
2280      Bk(I,2)=I-1
2290      Bk(I,3)=I
2300      Bk(I,4)=I+20
2310      Bk(I,5)=I+21
2320      Bk(I,6)=I+42
2330      Op(I,1)=1/(B^4)
2340      Op(I,2)=-4/(B^4)-1.9/((B^2)*(A^2))
2350      Op(I,3)=2.9/(B^4)+1.7/((B^2)*(A^2))+2.9/(A^4)
2360      Op(I,4)=2/((B^2)*(A^2))
2370      Op(I,5)=-4/(A^4)-1.9/((B^2)*(A^2))
2380      Op(I,6)=1/(A^4)
2390      Ctr=0
2400      GOTO 21450
2410      !
2420      ! ROW 2 OF GRID POINTS
2430      !
2440      IF I>42 THEN 7230
2450      IF Nec=3 THEN 4770
2460      IF Ctr>1 THEN 2760
2470      IF Wec=3 THEN 2490
2480      GOTO 21450
2490      Bk(I,1)=I
2500      Bk(I,2)=I+1
2510      Bk(I,3)=I+2
2520      Bk(I,4)=I+21
2530      Bk(I,5)=I+22
2540      Bk(I,6)=I+42
2550      IF Eec=3 THEN 2660
2560      IF Nec=2 THEN 2590
2570      Op(I,1)=2.9/(B^4)+3.8/((B^2)*(A^2))+7/(A^4)
2580      GOTO 2600
2590      Op(I,1)=2.9/(B^4)+3.8/((B^2)*(A^2))+5/(A^4)
```

```
2610      Op(I,3)=1/(B^4)
2620      Op(I,4)=-4/(A^4)-1.9/((B^2)*(A^2))
2630      Op(I,5)=2/((B^2)*(A^2))
2640      Op(I,6)=1/(A^4)
2650      GOTO 21450
2660      IF Nec=2 THEN 2690
2670      Op(I,1)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
2680      GOTO 2700
2690      Op(I,1)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
2700      Op(I,2)=-8/(B^4)-8/((B^2)*(A^2))
2710      Op(I,3)=2/(B^4)
2720      Op(I,4)=-4/(A^4)-4/((B^2)*(A^2))
2730      Op(I,5)=4/((B^2)*(A^2))
2740      Op(I,6)=1/(A^4)
2750      GOTO 21450
2760      IF Ctr>2 THEN 3270
2770      IF Wec=3 THEN 3000
2780      Bk(I,1)=I
2790      Bk(I,2)=I+1
2800      Bk(I,3)=I+2
2810      Bk(I,4)=I+21
2820      Bk(I,5)=I+22
2830      Bk(I,6)=I+42
2840      IF Nec=2 THEN 2900
2850      IF Wec=2 THEN 2880
2860      Op(I,1)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
2870      GOTO 2940
2880      Op(I,1)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
2890      GOTO 2940
2900      IF Wec=2 THEN 2930
2910      Op(I,1)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
2920      GOTO 2940
2930      Op(I,1)=5/(B^4)+8/((B^2)*(A^2))+5/(A^4)
2940      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
2950      Op(I,3)=1/(B^4)
2960      Op(I,4)=-4/(A^4)-4/((B^2)*(A^2))
2970      Op(I,5)=2/((B^2)*(A^2))
2980      Op(I,6)=1/(A^4)
2990      GOTO 21450
3000      Bk(I,1)=I-1
3010      Bk(I,2)=I
3020      Bk(I,3)=I+1
3030      Bk(I,4)=I+2
3040      Bk(I,5)=I+20
3050      Bk(I,6)=I+21
3060      Bk(I,7)=I+22
3070      Bk(I,8)=I+42
3080      IF Eec=3 THEN 3150
3090      Op(I,1)=-2.95/(B^4)-4/((B^2)*(A^2))
3100      IF Nec=2 THEN 3130
3110      Op(I,2)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
3120      GOTO 3200
3130      Op(I,2)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
3140      GOTO 3200
3150      Op(I,1)=-4/(B^4)-4/((B^2)*(A^2))
3160      IF Nec=2 THEN 3190
3170      Op(I,2)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
3180      GOTO 3200
3190      Op(I,2)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
3200      Op(I,3)=-4/(B^4)-4/((B^2)*(A^2))
3210      Op(I,4)=1/(B^4)
3220      Op(I,5)=2/((B^2)*(A^2))
3230      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
3240      Op(I,7)=2/((B^2)*(A^2))
3250      Op(I,8)=1/(A^4)
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3260      GOTO 21450
3270      IF Ctr>3 THEN 3490
3280      IF Wec=3 THEN 3500
3290      Bk(I,1)=I-1
3300      Bk(I,2)=I
3310      Bk(I,3)=I+1
3320      Bk(I,4)=I+2
3330      Bk(I,5)=I+20
3340      Bk(I,6)=I+21
3350      Bk(I,7)=I+22
3360      Bk(I,8)=I+42
3370      Op(I,1)=-4/(B^4)-4/((B^2)*(A^2))
3380      IF Nec=2 THEN 3410
3390      Op(I,2)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
3400      GOTO 3420
3410      Op(I,2)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
3420      Op(I,3)=-4/(B^4)-4/((B^2)*(A^2))
3430      Op(I,4)=1/(B^4)
3440      Op(I,5)=2/((B^2)*(A^2))
3450      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
3460      Op(I,7)=2/((B^2)*(A^2))
3470      Op(I,8)=1/(A^4)
3480      GOTO 21450
3490      IF Ctr>18 THEN 3720
3500      Bk(I,1)=I-2
3510      Bk(I,2)=I-1
3520      Bk(I,3)=I
3530      Bk(I,4)=I+1
3540      Bk(I,5)=I+2
3550      Bk(I,6)=I+20
3560      Bk(I,7)=I+21
3570      Bk(I,8)=I+22
3580      Bk(I,9)=I+42
3590      Op(I,1)=1/(B^4)
3600      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
3610      IF Nec=2 THEN 3640
3620      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
3630      GOTO 3650
3640      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
3650      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
3660      Op(I,5)=1/(B^4)
3670      Op(I,6)=2/((B^2)*(A^2))
3680      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
3690      Op(I,8)=2/((B^2)*(A^2))
3700      Op(I,9)=1/(A^4)
3710      GOTO 21450
3720      IF Ctr>19 THEN 3940
3730      IF Eec=3 THEN 3500
3740      Bk(I,1)=I-2
3750      Bk(I,2)=I-1
3760      Bk(I,3)=I
3770      Bk(I,4)=I+1
3780      Bk(I,5)=I+20
3790      Bk(I,6)=I+21
3800      Bk(I,7)=I+22
3810      Bk(I,8)=I+42
3820      Op(I,1)=1/(B^4)
3830      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
3840      IF Nec=2 THEN 3870
3850      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
3860      GOTO 3880
3870      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
3880      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
3890      Op(I,5)=2/((B^2)*(A^2))
3900      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
3910      Op(I,7)=2/((B^2)*(A^2))
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3920      Op(I,6)=1/(A^4)
3930      GOTO 21450
3940      IF Ctr>20 THEN 4450
3950      IF Eec=3 THEN 4180
3960      Bk(I,1)=I-2
3970      Bk(I,2)=I-1
3980      Bk(I,3)=I
3990      Bk(I,4)=I+20
4000      Bk(I,5)=I+21
4010      Bk(I,6)=I+42
4020      Op(I,1)=1/(B^4)
4030      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
4040      IF Nec=2 THEN 4100
4050      IF Eec=2 THEN 4080
4060      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
4070      GOTO 4140
4080      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
4090      GOTO 4140
4100      IF Eec=2 THEN 4130
4110      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
4120      GOTO 4140
4130      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+5/(A^4)
4140      Op(I,4)=2/((B^2)*(A^2))
4150      Op(I,5)=-4/(A^4)-4/((B^2)*(A^2))
4160      Op(I,6)=1/(A^4)
4170      GOTO 21450
4180      Bk(I,1)=I-2
4190      Bk(I,2)=I-1
4200      Bk(I,3)=I
4210      Bk(I,4)=I+1
4220      Bk(I,5)=I+20
4230      Bk(I,6)=I+21
4240      Bk(I,7)=I+22
4250      Bk(I,8)=I+42
4260      Op(I,1)=1/(B^4)
4270      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
4280      IF Wec=3 THEN 4350
4290      IF Nec=2 THEN 4320
4300      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
4310      GOTO 4330
4320      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
4330      Op(I,4)=-2.95/(B^4)-4/((B^2)*(A^2))
4340      GOTO 4400
4350      IF Nec=2 THEN 4380
4360      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
4370      GOTO 4390
4380      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
4390      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
4400      Op(I,5)=2/((B^2)*(A^2))
4410      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
4420      Op(I,7)=2/((B^2)*(A^2))
4430      Op(I,8)=1/(A^4)
4440      GOTO 21450
4450      IF Eec=3 THEN 4480
4460      Ctr=0
4470      GOTO 21450
4480      Bk(I,1)=I-2
4490      Bk(I,2)=I-1
4500      Bk(I,3)=I
4510      Bk(I,4)=I+20
4520      Bk(I,5)=I+21
4530      Bk(I,6)=I+42
4540      IF Wec=3 THEN 4660
4550      Op(I,1)=1/(B^4)
4560      Op(I,2)=-4/(B^4)-4/((B^2)*(A^2))
4570      IF Nec=2 THEN 4600
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4580      Op(I,5)=2.9/(B^4)+3.8/((B^2)*(A^2))+7/(A^4)
4590      GOTO 4610
4600      Op(I,3)=2.9/(B^4)+3.8/((B^2)*(A^2))+5/(A^4)
4610      Op(I,4)=2/((B^2)*(A^2))
4620      Op(I,5)=-4/(A^4)-1.9/((B^2)*(A^2))
4630      Op(I,6)=1/(A^4)
4640      Ctr=0
4650      GOTO 21450
4660      Op(I,1)=2/(B^4)
4670      Op(I,2)=-8/(B^4)-8/((B^2)*(A^2))
4680      IF Nec=2 THEN 4710
4690      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
4700      GOTO 4720
4710      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
4720      Op(I,4)=4/((B^2)*(A^2))
4730      Op(I,5)=-4/(A^4)-4/((B^2)*(A^2))
4740      Op(I,6)=1/(A^4)
4750      Ctr=0
4760      GOTO 21450
4770      IF Ctr>1 THEN 4970
4780      IF Wec=3 THEN 4800
4790      GOTO 21450
4800      Bk(I,1)=I-21
4810      Bk(I,2)=I-20
4820      Bk(I,3)=I
4830      Bk(I,4)=I+1
4840      Bk(I,5)=I+2
4850      Bk(I,6)=I+21
4860      Bk(I,7)=I+22
4870      Bk(I,8)=I+42
4880      Op(I,1)=-2.95/(A^4)-1.9/((B^2)*(A^2))
4890      Op(I,2)=2/((B^2)*(A^2))
4900      Op(I,3)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
4910      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
4920      Op(I,5)=1/(B^4)
4930      Op(I,6)=-4/(A^4)-1.9/((B^2)*(A^2))
4940      Op(I,7)=2/((B^2)*(A^2))
4950      Op(I,8)=1/(A^4)
4960      GOTO 21450
4970      IF Ctr>2 THEN 5510
4980      IF Wec=3 THEN 5280
4990      Bk(I,1)=I-21
5000      Bk(I,2)=I-20
5010      Bk(I,3)=I
5020      Bk(I,4)=I+1
5030      Bk(I,5)=I+2
5040      Bk(I,6)=I+21
5050      Bk(I,7)=I+22
5060      Bk(I,8)=I+42
5070      IF Sec=3 THEN 5100
5080      Op(I,1)=-2.95/(A^4)-4/((B^2)*(A^2))
5090      GOTO 5110
5100      Op(I,1)=-4/(A^4)-4/((B^2)*(A^2))
5110      Op(I,2)=2/((B^2)*(A^2))
5120      IF Wec=2 THEN 5180
5130      IF Sec=3 THEN 5160
5140      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
5150      GOTO 5220
5160      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
5170      GOTO 5220
5180      IF Sec=3 THEN 5210
5190      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
5200      GOTO 5220
5210      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
5220      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
5230      Op(I,5)=1/(B^4)
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5240      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
5250      Op(I,7)=2/((B^2)*(A^2))
5260      Op(I,8)=1/(A^4)
5270      GOTO 21450
5280      Bk(I,1)=I-22
5290      Bk(I,2)=I-21
5300      Bk(I,3)=I-20
5310      Bk(I,4)=I-1
5320      Bk(I,5)=I
5330      Bk(I,6)=I+1
5340      Bk(I,7)=I+2
5350      Bk(I,8)=I+20
5360      Bk(I,9)=I+21
5370      Bk(I,10)=I+22
5380      Bk(I,11)=I+42
5390      Op(I,1)=2/((B^2)*(A^2))
5400      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
5410      Op(I,3)=2/((B^2)*(A^2))
5420      Op(I,4)=-2.95/(B^4)-4/((B^2)*(A^2))
5430      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
5440      Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
5450      Op(I,7)=1/(B^4)
5460      Op(I,8)=2/((B^2)*(A^2))
5470      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
5480      Op(I,10)=2/((B^2)*(A^2))
5490      Op(I,11)=1/(A^4)
5500      GOTO 21450
5510      IF Ctr>3 THEN 5820
5520      IF Wec=3 THEN 5830
5530      Bk(I,1)=I-22
5540      Bk(I,2)=I-21
5550      Bk(I,3)=I-20
5560      Bk(I,4)=I-1
5570      Bk(I,5)=I
5580      Bk(I,6)=I+1
5590      Bk(I,7)=I+2
5600      Bk(I,8)=I+20
5610      Bk(I,9)=I+21
5620      Bk(I,10)=I+22
5630      Bk(I,11)=I+42
5640      Op(I,1)=2/((B^2)*(A^2))
5650      IF Sec=3 THEN 5680
5660      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
5670      GOTO 5690
5680      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
5690      Op(I,3)=2/((B^2)*(A^2))
5700      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
5710      IF Sec=3 THEN 5740
5720      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
5730      GOTO 5750
5740      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
5750      Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
5760      Op(I,7)=1/(B^4)
5770      Op(I,8)=2/((B^2)*(A^2))
5780      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
5790      Op(I,10)=2/((B^2)*(A^2))
5800      Op(I,11)=1/(A^4)
5810      GOTO 21450
5820      IF Ctr>18 THEN 6140
5830      Bk(I,1)=I-22
5840      Bk(I,2)=I-21
5850      Bk(I,3)=I-20
5860      Bk(I,4)=I-2
5870      Bk(I,5)=I-1
5880      Bk(I,6)=I
5890      Bk(I,7)=I+1
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5900      Bk(I,8)=I+19
5910      Bk(I,9)=I+20
5920      Bk(I,10)=I+21
5930      Bk(I,11)=I+22
5940      Bk(I,12)=I+42
5950      Op(I,1)=2/((B^2)*(A^2))
5960      IF Sec=3 THEN 5990
5970      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
5980      GOTO 6000
5990      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
6000      Op(I,3)=2/((B^2)*(A^2))
6010      Op(I,4)=1/(B^4)
6020      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
6030      IF Sec=3 THEN 6060
6040      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
6050      GOTO 6070
6060      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
6070      Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
6080      Op(I,8)=1/(B^4)
6090      Op(I,9)=2/((B^2)*(A^2))
6100      Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
6110      Op(I,11)=2/((B^2)*(A^2))
6120      Op(I,12)=1/(A^4)
6130      GOTO 21450
6140      IF Ctr>19 THEN 6450
6150      IF Eec=3 THEN 5830
6160      Bk(I,1)=I-22
6170      Bk(I,2)=I-21
6180      Bk(I,3)=I-20
6190      Bk(I,4)=I-2
6200      Bk(I,5)=I-1
6210      Bk(I,6)=I
6220      Bk(I,7)=I+1
6230      Bk(I,8)=I+20
6240      Bk(I,9)=I+21
6250      Bk(I,10)=I+22
6260      Bk(I,11)=I+42
6270      Op(I,1)=2/((B^2)*(A^2))
6280      IF Sec=3 THEN 6310
6290      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
6300      GOTO 6320
6310      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
6320      Op(I,3)=2/((B^2)*(A^2))
6330      Op(I,4)=1/(B^4)
6340      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
6350      IF Sec=3 THEN 6380
6360      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
6370      GOTO 6390
6380      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
6390      Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
6400      Op(I,8)=2/((B^2)*(A^2))
6410      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
6420      Op(I,10)=2/((B^2)*(A^2))
6430      Op(I,11)=1/(A^4)
6440      GOTO 21450
6450      IF Ctr>20 THEN 6990
6460      IF Eec=3 THEN 6760
6470      Bk(I,1)=I-22
6480      Bk(I,2)=I-21
6490      Bk(I,3)=I-2
6500      Bk(I,4)=I-1
6510      Bk(I,5)=I
6520      Bk(I,6)=I+20
6530      Bk(I,7)=I+21
6540      Bk(I,8)=I+42
6550      Op(I,1)=2/((B^2)*(A^2))
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6560      IF Sec=3 THEN 6590
6570      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
6580      GOTO 6600
6590      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
6600      Op(I,3)=1/(B^4)
6610      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
6620      IF Eec=2 THEN 6680
6630      IF Sec=3 THEN 6660
6640      Op(I,5)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
6650      GOTO 6720
6660      Op(I,5)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
6670      GOTO 6720
6680      IF Sec=3 THEN 6710
6690      Op(I,5)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
6700      GOTO 6720
6710      Op(I,5)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
6720      Op(I,6)=2/((B^2)*(A^2))
6730      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
6740      Op(I,8)=1/(A^4)
6750      GOTO 21450
6760      Bk(I,1)=I-22
6770      Bk(I,2)=I-21
6780      Bk(I,3)=I-20
6790      Bk(I,4)=I-2
6800      Bk(I,5)=I-1
6810      Bk(I,6)=I
6820      Bk(I,7)=I+1
6830      Bk(I,8)=I+20
6840      Bk(I,9)=I+21
6850      Bk(I,10)=I+22
6860      Bk(I,11)=I+42
6870      Op(I,1)=2/((B^2)*(A^2))
6880      Op(I,2)=-2.95/(A^4)-4/((B^2)*(A^2))
6890      Op(I,3)=2/((B^2)*(A^2))
6900      Op(I,4)=1/(B^4)
6910      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
6920      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
6930      Op(I,7)=-2.95/(B^4)-4/((B^2)*(A^2))
6940      Op(I,8)=2/((B^2)*(A^2))
6950      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
6960      Op(I,10)=2/((B^2)*(A^2))
6970      Op(I,11)=1/(A^4)
6980      GOTO 21450
6990      IF Eec=3 THEN 7020
7000      Ctr=0
7010      GOTO 21450
7020      Bk(I,1)=I-22
7030      Bk(I,2)=I-21
7040      Bk(I,3)=I-2
7050      Bk(I,4)=I-1
7060      Bk(I,5)=I
7070      Bk(I,6)=I+20
7080      Bk(I,7)=I+21
7090      Bk(I,8)=I+42
7100      Op(I,1)=2/((B^2)*(A^2))
7110      Op(I,2)=-2.95/(A^4)-1.9/((B^2)*(A^2))
7120      Op(I,3)=1/(B^4)
7130      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
7140      Op(I,5)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
7150      Op(I,6)=2/((B^2)*(A^2))
7160      Op(I,7)=-4/(A^4)-1.9/((B^2)*(A^2))
7170      Op(I,8)=1/(A^4)
7180      Ctr=0
7190      GOTO 21450
7200      !
7210      ! ROW 3 OF GRID POINTS
```

```
7230      IF I>63 THEN 9640
7240      IF Nec=3 THEN 9650
7250      IF Ctr>1 THEN 7550
7260      IF Wec=3 THEN 7280
7270      GOTO 21450
7280      Bk(I,1)=I-21
7290      Bk(I,2)=I-20
7300      Bk(I,3)=I
7310      Bk(I,4)=I+1
7320      Bk(I,5)=I+2
7330      Bk(I,6)=I+21
7340      Bk(I,7)=I+22
7350      Bk(I,8)=I+42
7360      IF Eec=3 THEN 7460
7370      Op(I,1)=-4/(A^4)-2.95/((B^2)*(A^2))
7380      Op(I,2)=2/((B^2)*(A^2))
7390      Op(I,3)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
7400      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
7410      Op(I,5)=1/(B^4)
7420      Op(I,6)=-4/(A^4)-2.95/((B^2)*(A^2))
7430      Op(I,7)=2/((B^2)*(A^2))
7440      Op(I,8)=1/(A^4)
7450      GOTO 21450
7460      Op(I,1)=-4/(A^4)-4/((B^2)*(A^2))
7470      Op(I,2)=4/((B^2)*(A^2))
7480      Op(I,3)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
7490      Op(I,4)=-8/(B^4)-8/((B^2)*(A^2))
7500      Op(I,5)=2/(B^4)
7510      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
7520      Op(I,7)=4/((B^2)*(A^2))
7530      Op(I,8)=1/(A^4)
7540      GOTO 21450
7550      IF Ctr>2 THEN 8040
7560      IF Wec=3 THEN 7770
7570      Bk(I,1)=I-21
7580      Bk(I,2)=I-20
7590      Bk(I,3)=I
7600      Bk(I,4)=I+1
7610      Bk(I,5)=I+2
7620      Bk(I,6)=I+21
7630      Bk(I,7)=I+22
7640      Bk(I,8)=I+42
7650      Op(I,1)=-4/(A^4)-4/((B^2)*(A^2))
7660      Op(I,2)=2/((B^2)*(A^2))
7670      IF Wec=2 THEN 7700
7680      Op(I,3)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
7690      GOTO 7710
7700      Op(I,3)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
7710      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
7720      Op(I,5)=1/(B^4)
7730      Op(I,6)=-4/(A^4)-4/((B^2)*(A^2))
7740      Op(I,7)=2/((B^2)*(A^2))
7750      Op(I,8)=1/(A^4)
7760      GOTO 21450
7770      Bk(I,1)=I-22
7780      Bk(I,2)=I-21
7790      Bk(I,3)=I-20
7800      Bk(I,4)=I-1
7810      Bk(I,5)=I
7820      Bk(I,6)=I+1
7830      Bk(I,7)=I+2
7840      Bk(I,8)=I+20
7850      Bk(I,9)=I+21
7860      Bk(I,10)=I+22
7870      Bk(I,11)=I+42
```

```
7880      Op(I,1)=2/((B^2)*(A^2))
7890      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
7900      Op(I,3)=2/((B^2)*(A^2))
7910      IF Eec=3 THEN 7950
7920      Op(I,4)=-2.95/(B^4)-4/((B^2)*(A^2))
7930      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
7940      GOTO 7970
7950      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
7960      Op(I,5)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
7970      Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
7980      Op(I,7)=1/(B^4)
7990      Op(I,8)=2/((B^2)*(A^2))
8000      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
8010      Op(I,10)=2/((B^2)*(A^2))
8020      Op(I,11)=1/(A^4)
8030      GOTO 21450
8040      IF Ctr>3 THEN 8290
8050      IF Wec=3 THEN 8300
8060      Bk(I,1)=I-22
8070      Bk(I,2)=I-21
8080      Bk(I,3)=I-20
8090      Bk(I,4)=I-1
8100      Bk(I,5)=I
8110      Bk(I,6)=I+1
8120      Bk(I,7)=I+2
8130      Bk(I,8)=I+20
8140      Bk(I,9)=I+21
8150      Bk(I,10)=I+22
8160      Bk(I,11)=I+42
8170      Op(I,1)=2/((B^2)*(A^2))
8180      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
8190      Op(I,3)=2/((B^2)*(A^2))
8200      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
8210      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
8220      Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
8230      Op(I,7)=1/(B^4)
8240      Op(I,8)=2/((B^2)*(A^2))
8250      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
8260      Op(I,10)=2/((B^2)*(A^2))
8270      Op(I,11)=1/(A^4)
8280      GOTO 21450
8290      IF Ctr>18 THEN 8550
8300      Bk(I,1)=I-22
8310      Bk(I,2)=I-21
8320      Bk(I,3)=I-20
8330      Bk(I,4)=I-2
8340      Bk(I,5)=I-1
8350      Bk(I,6)=I
8360      Bk(I,7)=I+1
8370      Bk(I,8)=I+2
8380      Bk(I,9)=I+20
8390      Bk(I,10)=I+21
8400      Bk(I,11)=I+22
8410      Bk(I,12)=I+42
8420      Op(I,1)=2/((B^2)*(A^2))
8430      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
8440      Op(I,3)=2/((B^2)*(A^2))
8450      Op(I,4)=1/(B^4)
8460      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
8470      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
8480      Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
8490      Op(I,8)=1/(B^4)
8500      Op(I,9)=2/((B^2)*(A^2))
8510      Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
8520      Op(I,11)=2/((B^2)*(A^2))
8530      Op(I,12)=1/(A^4)
```

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8550      IF Ctr>19 THEN 8800
8560      IF Eec=3 THEN 8300
8570      Bk(I,1)=I-22
8580      Bk(I,2)=I-21
8590      Bk(I,3)=I-20
8600      Bk(I,4)=I-2
8610      Bk(I,5)=I-1
8620      Bk(I,6)=I
8630      Bk(I,7)=I+1
8640      Bk(I,8)=I+20
8650      Bk(I,9)=I+21
8660      Bk(I,10)=I+22
8670      Bk(I,11)=I+42
8680      Op(I,1)=2/((B^2)*(A^2))
8690      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
8700      Op(I,3)=2/((B^2)*(A^2))
8710      Op(I,4)=1/(B^4)
8720      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
8730      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
8740      Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
8750      Op(I,8)=2/((B^2)*(A^2))
8760      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
8770      Op(I,10)=2/((B^2)*(A^2))
8780      Op(I,11)=1/(A^4)
8790      GOTO 21450
8800      IF Ctr>20 THEN 9290
8810      IF Eec=3 THEN 9020
8820      Bk(I,1)=I-22
8830      Bk(I,2)=I-21
8840      Bk(I,3)=I-2
8850      Bk(I,4)=I-1
8860      Bk(I,5)=I
8870      Bk(I,6)=I+20
8880      Bk(I,7)=I+21
8890      Bk(I,8)=I+42
8900      Op(I,1)=2/((B^2)*(A^2))
8910      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
8920      Op(I,3)=1/(B^4)
8930      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
8940      IF Eec=2 THEN 8970
8950      Op(I,5)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
8960      GOTO 8980
8970      Op(I,5)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
8980      Op(I,6)=2/((B^2)*(A^2))
8990      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
9000      Op(I,8)=1/(A^4)
9010      GOTO 21450
9020      Bk(I,1)=I-22
9030      Bk(I,2)=I-21
9040      Bk(I,3)=I-20
9050      Bk(I,4)=I-2
9060      Bk(I,5)=I-1
9070      Bk(I,6)=I
9080      Bk(I,7)=I+1
9090      Bk(I,8)=I+20
9100      Bk(I,9)=I+21
9110      Bk(I,10)=I+22
9120      Bk(I,11)=I+42
9130      Op(I,1)=2/((B^2)*(A^2))
9140      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
9150      Op(I,3)=2/((B^2)*(A^2))
9160      Op(I,4)=1/(B^4)
9170      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
9180      IF Wec=3 THEN 9220
9190      Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
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9200      OP(I,7)=-2.9/(B^4)-4/((B^2)*(A^2))
9210      GOTO 9240
9220      Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
9230      Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
9240      Op(I,8)=2/((B^2)*(A^2))
9250      Op(I,9)=-4/(A^4)-4/((B^2)*(A^2))
9260      Op(I,10)=2/((B^2)*(A^2))
9270      Op(I,11)=1/(A^4)
9280      GOTO 21450
9290      IF Eec=3 THEN 9320
9300      Ctr=0
9310      GOTO 21450
9320      Bk(I,1)=I-22
9330      Bk(I,2)=I-21
9340      Bk(I,3)=I-2
9350      Bk(I,4)=I-1
9360      Bk(I,5)=I
9370      Bk(I,6)=I+20
9380      Bk(I,7)=I+21
9390      Bk(I,8)=I+42
9400      IF Wec=3 THEN 9510
9410      Op(I,1)=2/((B^2)*(A^2))
9420      Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
9430      Op(I,3)=1/(B^4)
9440      Op(I,4)=-4/(B^4)-4/((B^2)*(A^2))
9450      Op(I,5)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
9460      Op(I,6)=2/((B^2)*(A^2))
9470      Op(I,7)=-4/(A^4)-1.9/((B^2)*(A^2))
9480      Op(I,8)=1/(A^4)
9490      Ctr=0
9500      GOTO 21450
9510      Op(I,1)=4/((B^2)*(A^2))
9520      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
9530      Op(I,3)=2/(B^4)
9540      Op(I,4)=-8/(B^4)-8/((B^2)*(A^2))
9550      Op(I,5)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
9560      Op(I,6)=4/((B^2)*(A^2))
9570      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
9580      Op(I,8)=1/(A^4)
9590      Ctr=0
9600      GOTO 21450
9610      !
9620      ! ROWS 4 - 18 OF PLATE
9630      !
9640      IF I>378 THEN 12190
9650      IF Ctr>1 THEN 9960
9660      IF Wec=3 THEN 9680
9670      GOTO 21450
9680      Bk(I,1)=I-42
9690      Bk(I,2)=I-21
9700      Bk(I,3)=I-20
9710      Bk(I,4)=I
9720      Bk(I,5)=I+1
9730      Bk(I,6)=I+2
9740      Bk(I,7)=I+21
9750      Bk(I,8)=I+22
9760      Bk(I,9)=I+42
9770      Op(I,1)=1/(A^4)
9780      IF Eec=3 THEN 9870
9790      Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
9800      Op(I,3)=2/((B^2)*(A^2))
9810      Op(I,4)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
9820      Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
9830      Op(I,6)=1/(B^4)
9840      Op(I,7)=-4/(A^4)-1.9/((B^2)*(A^2))
9850      Op(I,8)=2/((B^2)*(A^2))
```

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9870      Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
9880      Op(I,3)=4/((B^2)*(A^2))
9890      Op(I,4)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
9900      Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
9910      Op(I,6)=2/(B^4)
9920      Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
9930      Op(I,8)=4/((B^2)*(A^2))
9940      Op(I,9)=1/(A^4)
9950      GOTO 21450
9960      IF Ctr>2 THEN 10490
9970      IF Wec=3 THEN 10200
9980      Bk(I,1)=I-42
9990      Bk(I,2)=I-21
10000     Bk(I,3)=I-20
10010     Bk(I,4)=I
10020     Bk(I,5)=I+1
10030     Bk(I,6)=I+2
10040     Bk(I,7)=I+21
10050     Bk(I,8)=I+22
10060     Bk(I,9)=I+42
10070     Op(I,1)=1/(A^4)
10080     Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
10090     Op(I,3)=2/((B^2)*(A^2))
10100     IF Wec=2 THEN 10130
10110     Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10120     GOTO 10140
10130     Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10140     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
10150     Op(I,6)=1/(B^4)
10160     Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
10170     Op(I,8)=2/((B^2)*(A^2))
10180     Op(I,9)=1/(A^4)
10190     GOTO 21450
10200     Bk(I,1)=I-42
10210     Bk(I,2)=I-22
10220     Bk(I,3)=I-21
10230     Bk(I,4)=I-20
10240     Bk(I,5)=I-1
10250     Bk(I,6)=I
10260     Bk(I,7)=I+1
10270     Bk(I,8)=I+2
10280     Bk(I,9)=I+20
10290     Bk(I,10)=I+21
10300     Bk(I,11)=I+22
10310     Bk(I,12)=I+42
10320     Op(I,1)=1/(A^4)
10330     Op(I,2)=2/((B^2)*(A^2))
10340     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
10350     Op(I,4)=2/((B^2)*(A^2))
10360     IF Eec=3 THEN 10400
10370     Op(I,5)=-2.95/(B^4)-4/((B^2)*(A^2))
10380     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10390     GOTO 10420
10400     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
10410     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10420     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
10430     Op(I,8)=1/(B^4)
10440     Op(I,9)=2/((B^2)*(A^2))
10450     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
10460     Op(I,11)=2/((B^2)*(A^2))
10470     Op(I,12)=1/(A^4)
10480     GOTO 21450
10490     IF Ctr>3 THEN 10760
10500     IF Wec=3 THEN 10770
10510     Bk(I,1)=I-42
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10520     Bk(I,2)=I-22
10530     Bk(I,3)=I-21
10540     Bk(I,4)=I-20
10550     Bk(I,5)=I-1
10560     Bk(I,6)=I
10570     Bk(I,7)=I+1
10580     Bk(I,8)=I+2
10590     Bk(I,9)=I+20
10600     Bk(I,10)=I+21
10610     Bk(I,11)=I+22
10620     Bk(I,12)=I+42
10630     Op(I,1)=1/(A^4)
10640     Op(I,2)=2/((B^2)*(A^2))
10650     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
10660     Op(I,4)=2/((B^2)*(A^2))
10670     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
10680     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10690     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
10700     Op(I,8)=1/(B^4)
10710     Op(I,9)=2/((B^2)*(A^2))
10720     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
10730     Op(I,11)=2/((B^2)*(A^2))
10740     Op(I,12)=1/(A^4)
10750     GOTO 21450
10760     IF Ctr>18 THEN 11040
10770     Bk(I,1)=I-42
10780     Bk(I,2)=I-22
10790     Bk(I,3)=I-21
10800     Bk(I,4)=I-20
10810     Bk(I,5)=I-2
10820     Bk(I,6)=I-1
10830     Bk(I,7)=I
10840     Bk(I,8)=I+1
10850     Bk(I,9)=I+2
10860     Bk(I,10)=I+20
10870     Bk(I,11)=I+21
10880     Bk(I,12)=I+22
10890     Bk(I,13)=I+42
10900     Op(I,1)=1/(A^4)
10910     Op(I,2)=2/((B^2)*(A^2))
10920     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
10930     Op(I,4)=2/((B^2)*(A^2))
10940     Op(I,5)=1/(B^4)
10950     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
10960     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
10970     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
10980     Op(I,9)=1/(B^4)
10990     Op(I,10)=2/((B^2)*(A^2))
11000     Op(I,11)=-4/(A^4)-4/((B^2)*(A^2))
11010     Op(I,12)=2/((B^2)*(A^2))
11020     Op(I,13)=1/(A^4)
11030     GOTO 21450
11040     IF Ctr>19 THEN 11310
11050     IF Eec=3 THEN 10770
11060     Bk(I,1)=I-42
11070     Bk(I,2)=I-22
11080     Bk(I,3)=I-21
11090     Bk(I,4)=I-20
11100     Bk(I,5)=I-2
11110     Bk(I,6)=I-1
11120     Bk(I,7)=I
11130     Bk(I,8)=I+1
11140     Bk(I,9)=I+20
11150     Bk(I,10)=I+21
11160     Bk(I,11)=I+22
11170     Bk(I,12)=I+42
```

```
11180     Op(I,1)=1/(A^4)
11190     Op(I,2)=2/((B^2)*(A^2))
11200     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
11210     Op(I,4)=2/((B^2)*(A^2))
11220     Op(I,5)=1/(B^4)
11230     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
11240     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
11250     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
11260     Op(I,9)=2/((B^2)*(A^2))
11270     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
11280     Op(I,11)=2/((B^2)*(A^2))
11290     Op(I,12)=1/(A^4)
11300     GOTO 21450
11310     IF Ctr>20 THEN 11840
11320     IF Eec=3 THEN 11550
11330     Bk(I,1)=I-42
11340     Bk(I,2)=I-22
11350     Bk(I,3)=I-21
11360     Bk(I,4)=I-2
11370     Bk(I,5)=I-1
11380     Bk(I,6)=I
11390     Bk(I,7)=I+20
11400     Bk(I,8)=I+21
11410     Bk(I,9)=I+42
11420     Op(I,1)=1/(A^4)
11430     Op(I,2)=2/((B^2)*(A^2))
11440     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
11450     Op(I,4)=1/(B^4)
11460     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
11470     IF Eec=2 THEN 11500
11480     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
11490     GOTO 11510
11500     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
11510     Op(I,7)=2/((B^2)*(A^2))
11520     Op(I,8)=-4/(A^4)-4/((B^2)*(A^2))
11530     Op(I,9)=1/(A^4)
11540     GOTO 21450
11550     Bk(I,1)=I-42
11560     Bk(I,2)=I-22
11570     Bk(I,3)=I-21
11580     Bk(I,4)=I-20
11590     Bk(I,5)=I-2
11600     Bk(I,6)=I-1
11610     Bk(I,7)=I
11620     Bk(I,8)=I+1
11630     Bk(I,9)=I+20
11640     Bk(I,10)=I+21
11650     Bk(I,11)=I+22
11660     Bk(I,12)=I+42
11670     Op(I,1)=1/(A^4)
11680     Op(I,2)=2/((B^2)*(A^2))
11690     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
11700     Op(I,4)=2/((B^2)*(A^2))
11710     Op(I,5)=1/(B^4)
11720     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
11730     IF Wec=3 THEN 11770
11740     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
11750     Op(I,8)=-2.95/(B^4)-4/((B^2)*(A^2))
11760     GOTO 11790
11770     Op(I,7)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
11780     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
11790     Op(I,9)=2/((B^2)*(A^2))
11800     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
11810     Op(I,11)=2/((B^2)*(A^2))
11820     Op(I,12)=1/(A^4)
11830     GOTO 21450
```

```
11840     IF Eec=3 THEN 11870
11850     Ctr=0
11860     GOTO 21450
11870     Bk(I,1)=I-42
11880     Bk(I,2)=I-22
11890     Bk(I,3)=I-21
11900     Bk(I,4)=I-2
11910     Bk(I,5)=I-1
11920     Bk(I,6)=I
11930     Bk(I,7)=I+20
11940     Bk(I,8)=I+21
11950     Bk(I,9)=I+42
11960     Op(I,1)=1/(A^4)
11970     IF Wec=3 THEN 12060
11980     Op(I,2)=2/((B^2)*(A^2))
11990     Op(I,3)=-4/(A^4)-1.9/((B^2)*(A^2))
12000     Op(I,4)=1/(B^4)
12010     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
12020     Op(I,6)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
12030     Op(I,7)=2/((B^2)*(A^2))
12040     Op(I,8)=-4/(A^4)-1.9/((B^2)*(A^2))
12050     GOTO 12130
12060     Op(I,2)=4/((B^2)*(A^2))
12070     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
12080     Op(I,4)=2/(B^4)
12090     Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
12100     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12110     Op(I,7)=4/((B^2)*(A^2))
12120     Op(I,8)=-4/(A^4)-4/((B^2)*(A^2))
12130     Op(I,9)=1/(A^4)
12140     Ctr=0
12150     GOTO 21450
12160     !
12170     ! ROW 19 OF GRID POINTS
12180     !
12190     IF I>399 THEN 14580
12200     IF Sec=3 THEN 9650
12210     IF Ctr>1 THEN 12500
12220     IF Wec=3 THEN 12240
12230     GOTO 21450
12240     Bk(I,1)=I-42
12250     Bk(I,2)=I-21
12260     Bk(I,3)=I-20
12270     Bk(I,4)=I
12280     Bk(I,5)=I+1
12290     Bk(I,6)=I+2
12300     Bk(I,7)=I+21
12310     Bk(I,8)=I+22
12320     Op(I,1)=1/(A^4)
12330     IF Eec=3 THEN 12420
12340     Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
12350     Op(I,3)=2/((B^2)*(A^2))
12360     Op(I,4)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
12370     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
12380     Op(I,6)=1/(B^4)
12390     Op(I,7)=-4/(A^4)-1.9/((B^2)*(A^2))
12400     Op(I,8)=2/((B^2)*(A^2))
12410     GOTO 21450
12420     Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
12430     Op(I,3)=4/((B^2)*(A^2))
12440     Op(I,4)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12450     Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
12460     Op(I,6)=2/(B^4)
12470     Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
12480     Op(I,8)=4/((B^2)*(A^2))
12490     GOTO 21450
```

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12500     IF Ctr>2 THEN 12770
12510     IF Wec=3 THEN 12720
12520     Bk(I,1)=I-42
12530     Bk(I,2)=I-21
12540     Bk(I,3)=I-20
12550     Bk(I,4)=I
12560     Bk(I,5)=I+1
12570     Bk(I,6)=I+2
12580     Bk(I,7)=I+21
12590     Bk(I,8)=I+22
12600     Op(I,1)=1/(A^4)
12610     Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
12620     Op(I,3)=2/((B^2)*(A^2))
12630     IF Wec=2 THEN 12660
12640     Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12650     GOTO 12670
12660     Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12670     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
12680     Op(I,6)=1/(B^4)
12690     Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
12700     Op(I,8)=2/((B^2)*(A^2))
12710     GOTO 21450
12720     Bk(I,1)=I-42
12730     Bk(I,2)=I-22
12740     Bk(I,3)=I-21
12750     Bk(I,4)=I-20
12760     Bk(I,5)=I-1
12770     Bk(I,6)=I
12780     Bk(I,7)=I+1
12790     Bk(I,8)=I+2
12800     Bk(I,9)=I+20
12810     Bk(I,10)=I+21
12820     Bk(I,11)=I+22
12830     Op(I,1)=1/(A^4)
12840     Op(I,2)=2/((B^2)*(A^2))
12850     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
12860     Op(I,4)=2/((B^2)*(A^2))
12870     IF Eec=3 THEN 12910
12880     Op(I,5)=-2.95/(B^4)-4/((B^2)*(A^2))
12890     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12900     GOTO 12930
12910     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
12920     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
12930     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
12940     Op(I,8)=1/(B^4)
12950     Op(I,9)=2/((B^2)*(A^2))
12960     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
12970     Op(I,11)=2/((B^2)*(A^2))
12980     GOTO 21450
12990     IF Ctr>3 THEN 13240
13000     IF Wec=3 THEN 13250
13010     Bk(I,1)=I-42
13020     Bk(I,2)=I-22
13030     Bk(I,3)=I-21
13040     Bk(I,4)=I-20
13050     Bk(I,5)=I-1
13060     Bk(I,6)=I
13070     Bk(I,7)=I+1
13080     Bk(I,8)=I+2
13090     Bk(I,9)=I+20
13100     Bk(I,10)=I+21
13110     Bk(I,11)=I+22
13120     Op(I,1)=1/(A^4)
13130     Op(I,2)=2/((B^2)*(A^2))
13140     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
13150     Op(I,4)=2/((B^2)*(A^2))
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13160     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
13170     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
13180     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
13190     Op(I,8)=1/(B^4)
13200     Op(I,9)=2/((B^2)*(A^2))
13210     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
13220     Op(I,11)=2/((B^2)*(A^2))
13230     GOTO 21450
13240     IF Ctr>18 THEN 13500
13250     Bk(I,1)=I-42
13260     Bk(I,2)=I-22
13270     Bk(I,3)=I-21
13280     Bk(I,4)=I-20
13290     Bk(I,5)=I-2
13300     Bk(I,6)=I-1
13310     Bk(I,7)=I
13320     Bk(I,8)=I+1
13330     Bk(I,9)=I+2
13340     Bk(I,10)=I+20
13350     Bk(I,11)=I+21
13360     Bk(I,12)=I+22
13370     Op(I,1)=1/(A^4)
13380     Op(I,2)=2/((B^2)*(A^2))
13390     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
13400     Op(I,4)=2/((B^2)*(A^2))
13410     Op(I,5)=1/(B^4)
13420     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
13430     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
13440     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
13450     Op(I,9)=1/(B^4)
13460     Op(I,10)=2/((B^2)*(A^2))
13470     Op(I,11)=-4/(A^4)-4/((B^2)*(A^2))
13480     Op(I,12)=2/((B^2)*(A^2))
13490     GOTO 21450
13500     IF Ctr>19 THEN 13750
13510     IF Eec=3 THEN 13250
13520     Bk(I,1)=I-42
13530     Bk(I,2)=I-22
13540     Bk(I,3)=I-21
13550     Bk(I,4)=I-20
13560     Bk(I,5)=I-2
13570     Bk(I,6)=I-1
13580     Bk(I,7)=I
13590     Bk(I,8)=I+1
13600     Bk(I,9)=I+20
13610     Bk(I,10)=I+21
13620     Bk(I,11)=I+22
13630     Op(I,1)=1/(A^4)
13640     Op(I,2)=2/((B^2)*(A^2))
13650     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
13660     Op(I,4)=2/((B^2)*(A^2))
13670     Op(I,5)=1/(B^4)
13680     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
13690     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
13700     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
13710     Op(I,9)=2/((B^2)*(A^2))
13720     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
13730     Op(I,11)=2/((B^2)*(A^2))
13740     GOTO 21450
13750     IF Ctr>20 THEN 14240
13760     IF Eec=3 THEN 13970
13770     Bk(I,1)=I-42
13780     Bk(I,2)=I-22
13790     Bk(I,3)=I-21
13800     Bk(I,4)=I-2
13810     Bk(I,5)=I-1
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13830     Bk(I,7)=I+20
13840     Bk(I,8)=I+21
13850     Op(I,1)=1/(A^4)
13860     Op(I,2)=2/((B^2)*(A^2))
13870     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
13880     Op(I,4)=1/(B^4)
13890     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
13900     IF Eec=2 THEN 13930
13910     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
13920     GOTO 13940
13930     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
13940     Op(I,7)=2/((B^2)*(A^2))
13950     Op(I,8)=-4/(A^4)-4/((B^2)*(A^2))
13960     GOTO 21450
13970     Bk(I,1)=I-42
13980     Bk(I,2)=I-22
13990     Bk(I,3)=I-21
14000     Bk(I,4)=I-20
14010     Bk(I,5)=I-2
14020     Bk(I,6)=I-1
14030     Bk(I,7)=I
14040     Bk(I,8)=I+1
14050     Bk(I,9)=I+20
14060     Bk(I,10)=I+21
14070     Bk(I,11)=I+22
14080     Op(I,1)=1/(A^4)
14090     Op(I,2)=2/((B^2)*(A^2))
14100     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
14110     Op(I,4)=2/((B^2)*(A^2))
14120     Op(I,5)=1/(B^4)
14130     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
14140     IF Wec=3 THEN 14180
14150     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
14160     Op(I,8)=-2.95/(B^4)-4/((B^2)*(A^2))
14170     GOTO 14200
14180     Op(I,7)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
14190     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
14200     Op(I,9)=2/((B^2)*(A^2))
14210     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
14220     Op(I,11)=2/((B^2)*(A^2))
14230     GOTO 21450
14240     IF Eec=3 THEN 14270
14250     Ctr=0
14260     GOTO 21450
14270     Bk(I,1)=I-42
14280     Bk(I,2)=I-22
14290     Bk(I,3)=I-21
14300     Bk(I,4)=I-2
14310     Bk(I,5)=I-1
14320     Bk(I,6)=I
14330     Bk(I,7)=I+20
14340     Bk(I,8)=I+21
14350     Op(I,1)=1/(A^4)
14360     IF Wec=3 THEN 14460
14370     Op(I,2)=2/((B^2)*(A^2))
14380     Op(I,3)=-4/(A^4)-1.9/((B^2)*(A^2))
14390     Op(I,4)=1/(B^4)
14400     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
14410     Op(I,6)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
14420     Op(I,7)=2/((B^2)*(A^2))
14430     Op(I,8)=-4/(A^4)-1.9/((B^2)*(A^2))
14440     Ctr=0
14450     GOTO 21450

14460     Op(I,2)=4/((B^2)*(A^2))
14470     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
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14480     Op(I,4)=2/(B^4)
14490     Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
14500     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
14510     Op(I,7)=4/((B^2)*(A^2))
14520     Op(I,8)=-4/(A^4)-4/((B^2)*(A^2))
14530     Ctr=0
14540     GOTO 21450
14550     !
14560     ! ROW 20 OF GRID POINTS
14570     !
14580     IF I>420 THEN 19300
14590     IF Ctr>1 THEN 15060
14600     IF Wec=3 THEN 14620
14610     GOTO 21450
14620     IF Sec=3 THEN 14890
14630     Bk(I,1)=I-42
14640     Bk(I,2)=I-21
14650     Bk(I,3)=I-20
14660     Bk(I,4)=I
14670     Bk(I,5)=I+1
14680     Bk(I,6)=I+2
14690     Op(I,1)=1/(A^4)
14700     IF Eec=3 THEN 14800
14710     Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
14720     Op(I,3)=2/((B^2)*(A^2))
14730     IF Sec=2 THEN 14760
14740     Op(I,4)=2.9/(B^4)+3.8/((B^2)*(A^2))+7/(A^4)
14750     GOTO 14770
14760     Op(I,4)=2.9/(B^4)+3.8/((B^2)*(A^2))+5/(A^4)
14770     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
14780     Op(I,6)=1/(B^4)
14790     GOTO 21450
14800     Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
14810     Op(I,3)=4/((B^2)*(A^2))
14820     IF Sec=2 THEN 14850
14830     Op(I,4)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
14840     GOTO 14860
14850     Op(I,4)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
14860     Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
14870     Op(I,6)=2/(B^4)
14880     GOTO 21450
14890     Bk(I,1)=I-42
14900     Bk(I,2)=I-21
14910     Bk(I,3)=I-20
14920     Bk(I,4)=I
14930     Bk(I,5)=I+1
14940     Bk(I,6)=I+2
14950     Bk(I,7)=I+21
14960     Bk(I,8)=I+22
14970     Op(I,1)=1/(A^4)
14980     Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
14990     Op(I,3)=2/((B^2)*(A^2))
15000     Op(I,4)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
15010     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
15020     Op(I,6)=1/(B^4)
15030     Op(I,7)=-2.95/(A^4)-1.9/((B^2)*(A^2))
15040     Op(I,8)=2/((B^2)*(A^2))
15050     GOTO 21450
15060     IF Ctr>2 THEN 16110
15070     IF Sec=3 THEN 15580
15080     IF Wec=3 THEN 15310
15090     Bk(I,1)=I-42
15100     Bk(I,2)=I-21
15110     Bk(I,3)=I-20
15120     Bk(I,4)=I
15130     Bk(I,5)=I+1
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15140    Bk(I,6)=I+2
15150    Op(I,1)=1/(A^4)
15160    Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
15170    Op(I,3)=2/((A^2)*(B^2))
15180    IF Sec=2 THEN 15240
15190    IF Wec=2 THEN 15220
15200    Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
15210    GOTO 15280
15220    Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
15230    GOTO 15280
15240    IF Wec=2 THEN 15270
15250    Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
15260    GOTO 15280
15270    Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+5/(A^4)
15280    Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
15290    Op(I,6)=1/(B^4)
15300    GOTO 21450
15310    Bk(I,1)=I-42
15320    Bk(I,2)=I-22
15330    Bk(I,3)=I-21
15340    Bk(I,4)=I-20
15350    Bk(I,5)=I-1
15360    Bk(I,6)=I
15370    Bk(I,7)=I+1
15380    Bk(I,8)=I+2
15390    Op(I,1)=1/(A^4)
15400    Op(I,2)=2/((B^2)*(A^2))
15410    Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
15420    Op(I,4)=2/((B^2)*(A^2))
15430    IF Eec=3 THEN 15500
15440    Op(I,5)=-2.95/(B^4)-4/((B^2)*(A^2))
15450    IF Sec=2 THEN 15480
15460    Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
15470    GOTO 15550
15480    Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
15490    GOTO 15550
15500    Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
15510    IF Sec=2 THEN 15540
15520    Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
15530    GOTO 15550
15540    Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
15550    Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
15560    Op(I,8)=1/(B^4)
15570    GOTO 21450
15580    IF Wec=3 THEN 15880
15590    Bk(I,1)=I-42
15600    Bk(I,2)=I-21
15610    Bk(I,3)=I-20
15620    Bk(I,4)=I
15630    Bk(I,5)=I+1
15640    Bk(I,6)=I+2
15650    Bk(I,7)=I+21
15660    Bk(I,8)=I+22
15670    Op(I,1)=1/(A^4)
15680    Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
15690    Op(I,3)=2/((B^2)*(A^2))
15700    IF Nec=3 THEN 15760
15710    IF Wec=2 THEN 15740
15720    Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
15730    GOTO 15800
15740    Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
15750    GOTO 15800
15760    IF Wec=2 THEN 15790
15770    Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
15780    GOTO 15800
15790    Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
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15800     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
15810     Op(I,6)=1/(B^4)
15820     IF Nec=3 THEN 15850
15830     Op(I,7)=-2.95/(A^4)-4/((B^2)*(A^2))
15840     GOTO 15860
15850     Op(I,7)=-4/(A^4)-4/((B^2)*(A^2))
15860     Op(I,8)=2/((B^2)*(A^2))
15870     GOTO 21450
15880     Bk(I,1)=I-42
15890     Bk(I,2)=I-22
15900     Bk(I,3)=I-21
15910     Bk(I,4)=I-20
15920     Bk(I,5)=I-1
15930     Bk(I,6)=I
15940     Bk(I,7)=I+1
15950     Bk(I,8)=I+2
15960     Bk(I,9)=I+20
15970     Bk(I,10)=I+21
15980     Bk(I,11)=I+22
15990     Op(I,1)=1/(A^4)
16000     Op(I,2)=2/((B^2)*(A^2))
16010     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
16020     Op(I,4)=2/((B^2)*(A^2))
16030     Op(I,5)=-2.95/(B^4)-4/((B^2)*(A^2))
16040     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
16050     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
16060     Op(I,8)=1/(B^4)
16070     Op(I,9)=2/((B^2)*(A^2))
16080     Op(I,10)=-2.95/(A^4)-4/((B^2)*(A^2))
16090     Op(I,11)=2/((B^2)*(A^2))
16100     GOTO 21450
16110     IF Ctr>3 THEN 16630
16120     IF Wec=3 THEN 16640
16130     IF Sec=3 THEN 16340
16140     Bk(I,1)=I-42
16150     Bk(I,2)=I-22
16160     Bk(I,3)=I-21
16170     Bk(I,4)=I-20
16180     Bk(I,5)=I-1
16190     Bk(I,6)=I
16200     Bk(I,7)=I+1
16210     Bk(I,8)=I+2
16220     Op(I,1)=1/(A^4)
16230     Op(I,2)=2/((B^2)*(A^2))
16240     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
16250     Op(I,4)=2/((B^2)*(A^2))
16260     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
16270     IF Sec=2 THEN 16300
16280     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
16290     GOTO 16310
16300     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
16310     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
16320     Op(I,8)=1/(B^4)
16330     GOTO 21450
16340     Bk(I,1)=I-42
16350     Bk(I,2)=I-22
16360     Bk(I,3)=I-21
16370     Bk(I,4)=I-20
16380     Bk(I,5)=I-1
16390     Bk(I,6)=I
16400     Bk(I,7)=I+1
16410     Bk(I,8)=I+2
16420     Bk(I,9)=I+20
16430     Bk(I,10)=I+21
16440     Bk(I,11)=I+22
16450     Op(I,1)=1/(A^4)
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16460     Op(I,2)=2/((B^2)*(A^2))
16470     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
16480     Op(I,4)=2/((B^2)*(A^2))
16490     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
16500     IF Nec=3 THEN 16530
16510     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
16520     GOTO 16540
16530     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
16540     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
16550     Op(I,8)=1/(B^4)
16560     Op(I,9)=2/((B^2)*(A^2))
16570     IF Nec=3 THEN 16600
16580     Op(I,10)=-2.95/(A^4)-4/((B^2)*(A^2))
16590     GOTO 16610
16600     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
16610     Op(I,11)=2/((B^2)*(A^2))
16620     GOTO 21450
16630     IF Ctr>18 THEN 17180
16640     IF Sec=3 THEN 16870
16650     Bk(I,1)=I-42
16660     Bk(I,2)=I-22
16670     Bk(I,3)=I-21
16680     Bk(I,4)=I-20
16690     Bk(I,5)=I-2
16700     Bk(I,6)=I-1
16710     Bk(I,7)=I
16720     Bk(I,8)=I+1
16730     Bk(I,9)=I+2
16740     Op(I,1)=1/(A^4)
16750     Op(I,2)=2/((B^2)*(A^2))
16760     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
16770     Op(I,4)=2/((B^2)*(A^2))
16780     Op(I,5)=1/(B^4)
16790     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
16800     IF Sec=2 THEN 16830
16810     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
16820     GOTO 16840
16830     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
16840     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
16850     Op(I,9)=1/(B^4)
16860     GOTO 21450
16870     Bk(I,1)=I-42
16880     Bk(I,2)=I-22
16890     Bk(I,3)=I-21
16900     Bk(I,4)=I-20
16910     Bk(I,5)=I-2
16920     Bk(I,6)=I-1
16930     Bk(I,7)=I
16940     Bk(I,8)=I+1
16950     Bk(I,9)=I+2
16960     Bk(I,10)=I+20
16970     Bk(I,11)=I+21
16980     Bk(I,12)=I+22
16990     Op(I,1)=1/(A^4)
17000     Op(I,2)=2/((B^2)*(A^2))
17010     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
17020     Op(I,4)=2/((B^2)*(A^2))
17030     Op(I,5)=1/(B^4)
17040     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
17050     IF Nec=3 THEN 17080
17060     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
17070     GOTO 17090
17080     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
17090     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
17100     Op(I,9)=1/(B^4)
17110     Op(I,10)=2/((B^2)*(A^2))
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17120     IF Nec=3 THEN 17150
17130     Op(I,11)=-2.95/(A^4)-4/((B^2)*(A^2))
17140     GOTO 17160
17150     Op(I,11)=-4/(A^4)-4/((B^2)*(A^2))
17160     Op(I,12)=2/((B^2)*(A^2))
17170     GOTO 21450
17180     IF Ctr>19 THEN 17700
17190     IF Eec=3 THEN 16640
17200     IF Sec=3 THEN 17410
17210     Bk(I,1)=I-42
17220     Bk(I,2)=I-22
17230     Bk(I,3)=I-21
17240     Bk(I,4)=I-20
17250     Bk(I,5)=I-2
17260     Bk(I,6)=I-1
17270     Bk(I,7)=I
17280     Bk(I,8)=I+1
17290     Op(I,1)=1/(A^4)
17300     Op(I,2)=2/((B^2)*(A^2))
17310     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
17320     Op(I,4)=2/((B^2)*(A^2))
17330     Op(I,5)=1/(B^4)
17340     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
17350     IF Sec=2 THEN 17380
17360     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
17370     GOTO 17390
17380     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
17390     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
17400     GOTO 21450
17410     Bk(I,1)=I-42
17420     Bk(I,2)=I-22
17430     Bk(I,3)=I-21
17440     Bk(I,4)=I-20
17450     Bk(I,5)=I-2
17460     Bk(I,6)=I-1
17470     Bk(I,7)=I
17480     Bk(I,8)=I+1
17490     Bk(I,9)=I+20
17500     Bk(I,10)=I+21
17510     Bk(I,11)=I+22
17520     Op(I,1)=1/(A^4)
17530     Op(I,2)=2/((B^2)*(A^2))
17540     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
17550     Op(I,4)=2/((B^2)*(A^2))
17560     Op(I,5)=1/(B^4)
17570     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
17580     IF Nec=3 THEN 17610
17590     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
17600     GOTO 17620
17610     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
17620     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
17630     Op(I,9)=2/((B^2)*(A^2))
17640     IF Nec=3 THEN 17670
17650     Op(I,10)=-2.95/(A^4)-4/((B^2)*(A^2))
17660     GOTO 17680
17670     Op(I,10)=-4/(A^4)-4/((B^2)*(A^2))
17680     Op(I,11)=2/((B^2)*(A^2))
17690     GOTO 21450
17700     IF Ctr>20 THEN 18770
17710     IF Eec=3 THEN 18240
17720     IF Sec=3 THEN 17950
17730     Bk(I,1)=I-42
17740     Bk(I,2)=I-22
17750     Bk(I,3)=I-21
17760     Bk(I,4)=I-2
17770     Bk(I,5)=I-1
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17780     Bk(I,6)=I
17790     Op(I,1)=1/(A^4)
17800     Op(I,2)=2/((B^2)*(A^2))
17810     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
17820     Op(I,4)=1/(B^4)
17830     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
17840     IF Eec=2 THEN 17900
17850     IF Sec=2 THEN 17880
17860     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
17870     GOTO 17940
17880     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
17890     GOTO 17940
17900     IF Sec=2 THEN 17930
17910     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
17920     GOTO 17940
17930     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+5/(A^4)
17940     GOTO 21450
17950     Bk(I,1)=I-42
17960     Bk(I,2)=I-22
17970     Bk(I,3)=I-21
17980     Bk(I,4)=I-2
17990     Bk(I,5)=I-1
18000     Bk(I,6)=I
18010     Bk(I,7)=I+20
18020     Bk(I,8)=I+21
18030     Op(I,1)=1/(A^4)
18040     Op(I,2)=2/((B^2)*(A^2))
18050     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
18060     Op(I,4)=1/(B^4)
18070     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
18080     IF Nec=3 THEN 18140
18090     IF Eec=2 THEN 18120
18100     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
18110     GOTO 18180
18120     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
18130     GOTO 18180
18140     IF Eec=2 THEN 18170
18150     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
18160     GOTO 18180
18170     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+7/(A^4)
18180     Op(I,7)=2/((B^2)*(A^2))
18190     IF Nec=3 THEN 18220
18200     Op(I,8)=-2.95/(A^4)-4/((B^2)*(A^2))
18210     GOTO 18230
18220     Op(I,8)=-4/(A^4)-4/((B^2)*(A^2))
18230     GOTO 21450
18240     IF Sec=3 THEN 18540
18250     Bk(I,1)=I-42
18260     Bk(I,2)=I-22
18270     Bk(I,3)=I-21
18280     Bk(I,4)=I-20
18290     Bk(I,5)=I-2
18300     Bk(I,6)=I-1
18310     Bk(I,7)=I
18320     Bk(I,8)=I+1
18330     Op(I,1)=1/(A^4)
18340     Op(I,2)=2/((B^2)*(A^2))
18350     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
18360     Op(I,4)=2/((B^2)*(A^2))
18370     Op(I,5)=1/(B^4)
18380     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
18390     IF Wec=3 THEN 18450
18400     IF Sec=2 THEN 18430
18410     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
18420     GOTO 18490
18430     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
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18440     GOTO 18490
18450     IF Sec=2 THEN 18480
18460     Op(I,7)=7/(B^4)+8/((B^2)*(A^2))+7/(A^4)
18470     GOTO 18490
18480     Op(I,7)=7/(B^4)+8/((B^2)*(A^2))+5/(A^4)
18490     IF Wec=3 THEN 18520
18500     Op(I,8)=-2.95/(B^4)-4/((B^2)*(A^2))
18510     GOTO 18530
18520     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
18530     GOTO 21450
18540     Bk(I,1)=I-42
18550     Bk(I,2)=I-22
18560     Bk(I,3)=I-21
18570     Bk(I,4)=I-20
18580     Bk(I,5)=I-2
18590     Bk(I,6)=I-1
18600     Bk(I,7)=I
18610     Bk(I,8)=I+1
18620     Bk(I,9)=I+20
18630     Bk(I,10)=I+21
18640     Bk(I,11)=I+22
18650     Op(I,1)=1/(A^4)
18660     Op(I,2)=2/((B^2)*(A^2))
18670     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
18680     Op(I,4)=2/((B^2)*(A^2))
18690     Op(I,5)=1/(B^4)
18700     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
18710     Op(I,7)=6/(B^4)+8/((A^2)*(B^2))+6/(A^4)
18720     Op(I,8)=-2.95/(B^4)-4/((B^2)*(A^2))
18730     Op(I,9)=2/((B^2)*(A^2))
18740     Op(I,10)=-2.95/(A^4)-4/((B^2)*(A^2))
18750     Op(I,11)=2/((B^2)*(A^2))
18760     GOTO 21450
18770     IF Eec=3 THEN 18800
18780     Ctr=0
18790     GOTO 21450
18800     IF Sec=3 THEN 19090
18810     Bk(I,1)=I-42
18820     Bk(I,2)=I-22
18830     Bk(I,3)=I-21
18840     Bk(I,4)=I-2
18850     Bk(I,5)=I-1
18860     Bk(I,6)=I
18870     Op(I,1)=1/(A^4)
18880     IF Wec=3 THEN 18990
18890     Op(I,2)=2/((B^2)*(A^2))
18900     Op(I,3)=-4/(A^4)-1.9/((B^2)*(A^2))
18910     Op(I,4)=1/(B^4)
18920     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
18930     IF Sec=2 THEN 18960
18940     Op(I,6)=2.9/(B^4)+3.8/((B^2)*(A^2))+7/(A^4)
18950     GOTO 18970
18960     Op(I,6)=2.9/(B^4)+3.8/((B^2)*(A^2))+5/(A^4)
18970     Ctr=0
18980     GOTO 21450
18990     Op(I,2)=4/((B^2)*(A^2))
19000     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
19010     Op(I,4)=2/(B^4)
19020     Op(I,5)=-8/(B^4)-8/((B^2)*(A^2))
19030     IF Sec=2 THEN 19060
19040     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+7/(A^4)
19050     GOTO 19070
19060     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+5/(A^4)
19070     Ctr=0
19080     GOTO 21450
19090     Bk(I,1)=I-42
```

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19100     Bk(I,2)=I-22
19110     Bk(I,3)=I-21
19120     Bk(I,4)=I-2
19130     Bk(I,5)=I-1
19140     Bk(I,6)=I
19150     Bk(I,7)=I+20
19160     Bk(I,8)=I+21
19170     Op(I,1)=1/(A^4)
19180     Op(I,2)=2/((B^2)*(A^2))
19190     Op(I,3)=-4/(A^4)-1.9/((B^2)*(A^2))
19200     Op(I,4)=1/(B^4)
19210     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
19220     Op(I,6)=2.9/(B^4)+3.8/((B^2)*(A^2))+6/(A^4)
19230     Op(I,7)=2/((B^2)*(A^2))
19240     Op(I,8)=-2.95/(A^4)-1.9/((B^2)*(A^2))
19250     Ctr=0
19260     GOTO 21450
19270     !
19280     ! ROW 21 OF GRID POINTS
19290     !
19300     IF Sec=3 THEN 19320
19310     GOTO 21450
19320     IF Ctr>1 THEN 19480
19330     IF Wec=3 THEN 19350
19340     GOTO 21450
19350     Bk(I,1)=I-42
19360     Bk(I,2)=I-21
19370     Bk(I,3)=I-20
19380     Bk(I,4)=I
19390     Bk(I,5)=I+1
19400     Bk(I,6)=I+2
19410     Op(I,1)=1/(A^4)
19420     Op(I,2)=-4/(A^4)-1.9/((B^2)*(A^2))
19430     Op(I,3)=2/((B^2)*(A^2))
19440     Op(I,4)=2.9/(B^4)+1.7/((B/2)*(A^2))+2.9/(A^4)
19450     Op(I,5)=-4/(B^4)-1.9/((B^2)*(A^2))
19460     Op(I,6)=1/(B^4)
19470     GOTO 21450
19480     IF Ctr>2 THEN 19940
19490     IF Wec=3 THEN 19770
19500     Bk(I,1)=I-42
19510     Bk(I,2)=I-21
19520     Bk(I,3)=I-20
19530     Bk(I,4)=I
19540     Bk(I,5)=I+1
19550     Bk(I,6)=I+2
19560     IF Nec=3 THEN 19670
19570     Op(I,1)=1/(A^4)
19580     Op(I,2)=-4/(A^4)-4/((B^2)*(A^2))
19590     Op(I,3)=2/((B^2)*(A^2))
19600     IF Wec=2 THEN 19630
19610     Op(I,4)=7/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
19620     GOTO 19640
19630     Op(I,4)=5/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
19640     Op(I,5)=-4/(B^4)-1.9/((B^2)*(A^2))
19650     Op(I,6)=1/(B^4)
19660     GOTO 21450
19670     Op(I,1)=2/(A^4)
19680     Op(I,2)=-8/(A^4)-8/((B^2)*(A^2))
19690     Op(I,3)=4/((B^2)*(A^2))
19700     IF Wec=2 THEN 19730
19710     Op(I,4)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
19720     GOTO 19740
19730     Op(I,4)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
19740     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
19750     Op(I,6)=1/(B^4)
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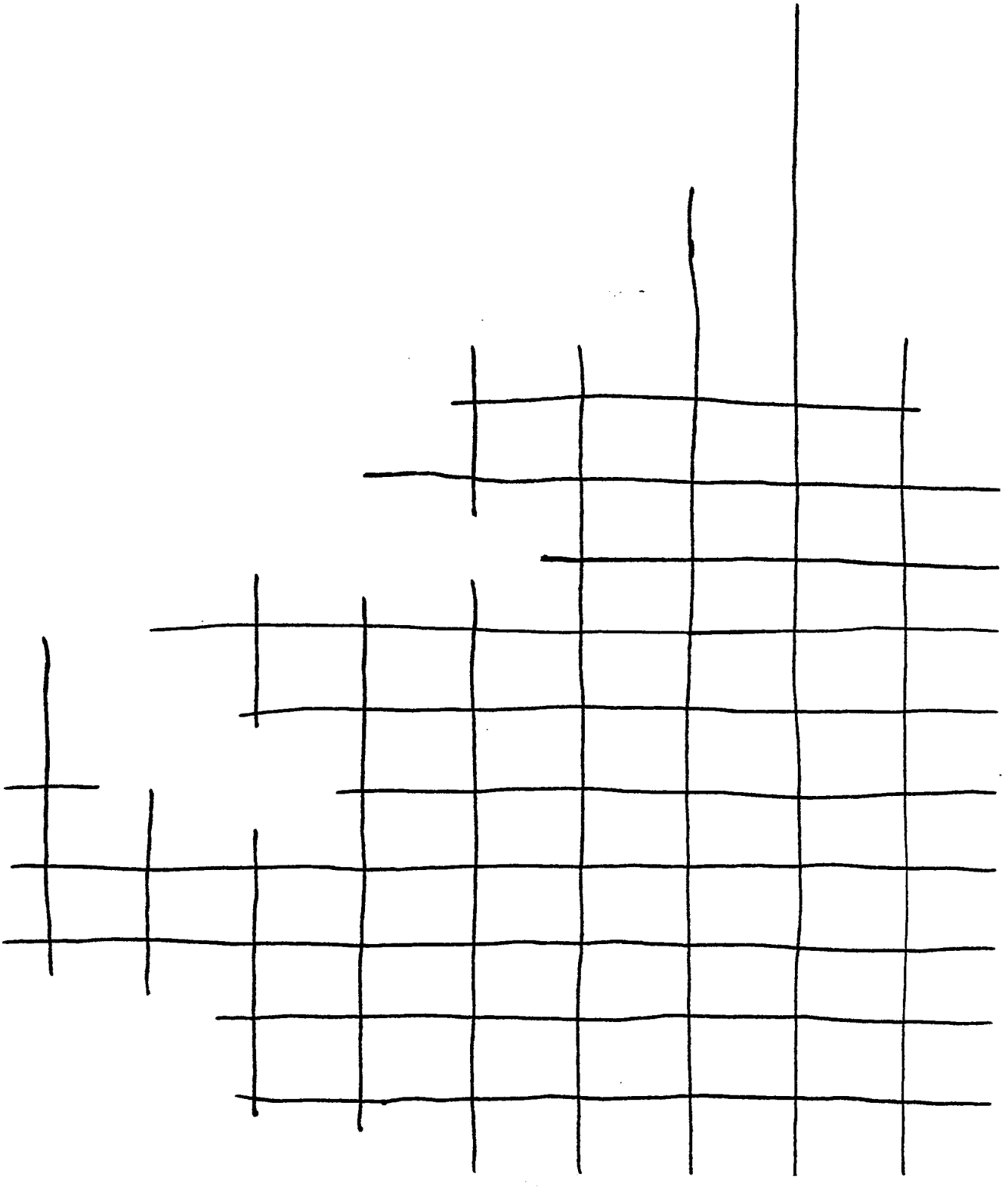
19760     GOTO 21450
19770     Bk(I,1)=I-42
19780     Bk(I,2)=I-22
19790     Bk(I,3)=I-21
19800     Bk(I,4)=I-20
19810     Bk(I,5)=I-1
19820     Bk(I,6)=I
19830     Bk(I,7)=I+1
19840     Bk(I,8)=I+2
19850     Op(I,1)=1/(A^4)
19860     Op(I,2)=2/((B^2)*(A^2))
19870     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
19880     Op(I,4)=2/((B^2)*(A^2))
19890     Op(I,5)=-2.95/(B^4)-1.9/((B^2)*(A^2))
19900     Op(I,6)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
19910     Op(I,7)=-4/(B^4)-1.9/((B^2)*(A^2))
19920     Op(I,8)=1/(B^4)
19930     GOTO 21450
19940     IF Ctr>3 THEN 20230
19950     IF Wec=3 THEN 20240
19960     Bk(I,1)=I-42
19970     Bk(I,2)=I-22
19980     Bk(I,3)=I-21
19990     Bk(I,4)=I-20
20000     Bk(I,5)=I-1
20010     Bk(I,6)=I
20020     Bk(I,7)=I+1
20030     Bk(I,8)=I+2
20040     IF Nec=3 THEN 20140
20050     Op(I,1)=1/(A^4)
20060     Op(I,2)=2/((B^2)*(A^2))
20070     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
20080     Op(I,4)=2/((B^2)*(A^2))
20090     Op(I,5)=-4/(B^4)-1.9/((B^2)*(A^2))
20100     Op(I,6)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
20110     Op(I,7)=-4/(B^4)-1.9/((B^2)*(A^2))
20120     Op(I,8)=1/(B^4)
20130     GOTO 21450
20140     Op(I,1)=2/(A^4)
20150     Op(I,2)=4/((B^2)*(A^2))
20160     Op(I,3)=-8/(A^4)-8/((B^2)*(A^2))
20170     Op(I,4)=4/((B^2)*(A^2))
20180     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
20190     Op(I,6)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
20200     Op(I,7)=-4/(B^4)-4/((B^2)*(A^2))
20210     Op(I,8)=1/(B^4)
20220     GOTO 21450
20230     IF Ctr>18 THEN 20540
20240     Bk(I,1)=I-42
20250     Bk(I,2)=I-22
20260     Bk(I,3)=I-21
20270     Bk(I,4)=I-20
20280     Bk(I,5)=I-2
20290     Bk(I,6)=I-1
20300     Bk(I,7)=I
20310     Bk(I,8)=I+1
20320     Bk(I,9)=I+2
20330     IF Nec=3 THEN 20440
20340     Op(I,1)=1/(A^4)
20350     Op(I,2)=2/((B^2)*(A^2))
20360     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
20370     Op(I,4)=2/((B^2)*(A^2))
20380     Op(I,5)=1/(B^4)
20390     Op(I,6)=-4/(B^4)-1.9/((B^2)*(A^2))
20400     Op(I,7)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
20410     Op(I,8)=-4/(B^4)-1.9/((B^2)*(A^2))
```

```
20420     Op(I,9)=1/(B^4)
20430     GOTO 21450
20440     Op(I,1)=2/(A^4)
20450     Op(I,2)=4/((B^2)*(A^2))
20460     Op(I,3)=-8/(A^4)-8/((B^2)*(A^2))
20470     Op(I,4)=4/((B^2)*(A^2))
20480     Op(I,5)=1/(B^4)
20490     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
20500     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
20510     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
20520     Op(I,9)=1/(B^4)
20530     GOTO 21450
20540     IF Ctr>19 THEN 20830
20550     IF Eec=3 THEN 20240
20560     Bk(I,1)=I-42
20570     Bk(I,2)=I-22
20580     Bk(I,3)=I-21
20590     Bk(I,4)=I-20
20600     Bk(I,5)=I-2
20610     Bk(I,6)=I-1
20620     Bk(I,7)=I
20630     Bk(I,8)=I+1
20640     IF Nec=3 THEN 20740
20650     Op(I,1)=1/(A^4)
20660     Op(I,2)=2/((B^2)*(A^2))
20670     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
20680     Op(I,4)=2/((B^2)*(A^2))
20690     Op(I,5)=1/(B^4)
20700     Op(I,6)=-4/(B^4)-1.9/((B^2)*(A^2))
20710     Op(I,7)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
20720     Op(I,8)=-4/(B^4)-1.9/((B^2)*(A^2))
20730     GOTO 21450
20740     Op(I,1)=2/(A^4)
20750     Op(I,2)=4/((B^2)*(A^2))
20760     Op(I,3)=-8/(A^4)-8/((B^2)*(A^2))
20770     Op(I,4)=4/((B^2)*(A^2))
20780     Op(I,5)=1/(B^4)
20790     Op(I,6)=-4/(B^4)-4/((B^2)*(A^2))
20800     Op(I,7)=6/(B^4)+8/((B^2)*(A^2))+6/(A^4)
20810     Op(I,8)=-4/(B^4)-4/((B^2)*(A^2))
20820     GOTO 21450
20830     IF Ctr>20 THEN 21290
20840     IF Eec=3 THEN 21120
20850     Bk(I,1)=I-42
20860     Bk(I,2)=I-22
20870     Bk(I,3)=I-21
20880     Bk(I,4)=I-2
20890     Bk(I,5)=I-1
20900     Bk(I,6)=I
20910     IF Nec=3 THEN 21020
20920     Op(I,1)=1/(A^4)
20930     Op(I,2)=2/((B^2)*(A^2))
20940     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
20950     Op(I,4)=1/(B^4)
20960     Op(I,5)=-4/(B^4)-1.9/((B^2)*(A^2))
20970     IF Eec=2 THEN 21000
20980     Op(I,6)=7/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
20990     GOTO 21010
21000     Op(I,6)=5/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
21010     GOTO 21450
21020     Op(I,1)=2/(A^4)
21030     Op(I,2)=4/((B^2)*(A^2))
21040     Op(I,3)=-8/(A^4)-8/((B^2)*(A^2))
21050     Op(I,4)=1/(B^4)
21060     Op(I,5)=-4/(B^4)-4/((B^2)*(A^2))
21070     IF Eec=2 THEN 21100
```

```
21080     Op(I,6)=7/(B^4)+8/((B^2)*(A^2))+6/(A^4)
21090     GOTO 21110
21100     Op(I,6)=5/(B^4)+8/((B^2)*(A^2))+6/(A^4)
21110     GOTO 21450
21120     Bk(I,1)=I-42
21130     Bk(I,2)=I-22
21140     Bk(I,3)=I-21
21150     Bk(I,4)=I-20
21160     Bk(I,5)=I-2
21170     Bk(I,6)=I-1
21180     Bk(I,7)=I
21190     Bk(I,8)=I+1
21200     Op(I,1)=1/(A^4)
21210     Op(I,2)=2/((B^2)*(A^2))
21220     Op(I,3)=-4/(A^4)-4/((B^2)*(A^2))
21230     Op(I,4)=2/((B^2)*(A^2))
21240     Op(I,5)=1/(B^4)
21250     Op(I,6)=-4/(B^4)-1.9/((B^2)*(A^2))
21260     Op(I,7)=6/(B^4)+3.8/((B^2)*(A^2))+2.9/(A^4)
21270     Op(I,8)=-2.95/(B^4)-1.9/((B^2)*(A^2))
21280     GOTO 21450
21290     IF Eec=3 THEN 21320
21300     Ctr=0
21310     GOTO 21450
21320     Bk(I,1)=I-42
21330     Bk(I,2)=I-22
21340     Bk(I,3)=I-21
21350     Bk(I,4)=I-2
21360     Bk(I,5)=I-1
21370     Bk(I,6)=I
21380     Op(I,1)=1/(A^4)
21390     Op(I,2)=2/((B^2)*(A^2))
21400     Op(I,3)=-4/(A^4)-1.9/((B^2)*(A^2))
21410     Op(I,4)=1/(B^4)
21420     Op(I,5)=-4/(B^4)-1.9/((B^2)*(A^2))
21430     Op(I,6)=2.9/(B^4)+1.7/((B^2)*(A^2))+2.9/(A^4)
21440     Ctr=0
21450     IF Ctr<>0 THEN 21470
21460     Row=Row+1
21470 NEXT I
21480 OUTPUT KBD;"K"; ! CLEAR SCREEN
21490 D=(E*(T^3))/(12*(1-(Pr^2)))
21500 FOR I=1 TO 441
21510    Load(I)=Load(I)/D
21520 NEXT I
21530 !
21540 ! GAUSS REDUCTION ON OPERATOR MATRIX
21550 !
21560 PRINT "GAUSS REDUCTION"
21570 Ctr=1
21580 Row=1
21590 PRINT "ROW";Row
21600 FOR G=2 TO 441
21610    IF Ctr<>0 THEN 21640
21620    Row=Row+1
21630    PRINT "ROW";Row
21640    Ctr=Ctr+1
21650    IF Bk(G,1)=0 THEN 22050
21660    FOR I=1 TO 50
21670       FOR J=1 TO 7
21680          IF Bk(G,J)=G THEN 21700
21690       NEXT J
21700       Pos=J
21710       Sbk=Bk(G,1)
21720       Rbk=1
21730       FOR J=2 TO 50
```

```
21740           IF Bk(G,J)=0 THEN 21790
21750           IF Bk(G,J)>Sbk THEN 21780
21760           Sbk=Bk(G,J)
21770           Rbk=J
21780        NEXT J
21790        IF Sbk<Bk(G,Pos) THEN 21810
21800        GOTO 22050
21810        Fac=Op(G,Rbk)/Op(Sbk,1)
21820        FOR J=1 TO 50
21830           IF Bk(Sbk,J)=0 THEN 21930
21840           FOR K=1 TO 50
21850              IF Bk(G,K)=Bk(Sbk,J) THEN 21880
21860              IF Bk(G,K)=0 THEN 21880
21870           NEXT K
21880           Op(G,K)=Op(G,K)-Op(Sbk,J)*Fac
21890           IF ABS(Op(G,K))<1.E-15 THEN Op(G,K)=0
21900           IF Bk(G,K)<>0 THEN 21920
21910           Bk(G,K)=Bk(Sbk,J)
21920        NEXT J
21930        FOR J=1 TO 50
21940           IF Bk(G,J)=0 THEN 22040
21950           IF Op(G,J)=0 THEN 21970
21960        NEXT J
21970        Jpo=J+1
21980        FOR J=Jpo TO 49
21990           Jmo=J-1
22000           Op(G,Jmo)=Op(G,J)
22010           Bk(G,Jmo)=Bk(G,J)
22020        NEXT J
22030        Load(G)=Load(G)-Load(Sbk)*Fac
22040     NEXT I
22050     IF Ctr<21 THEN 22070
22060     Ctr=0
22070  NEXT G
22080  OUTPUT KBD;"K"; ! CLEAR SCREEN
22090  !
22100  ! BACK SUBSTITIUTION TO DETERMINE DEFLECTIONS
22110  !
22120  PRINT "BACK SUBSTITUTION"
22130  FOR Back=441 TO 1 STEP -1
22140     IF Bk(Back,1)=0 THEN 22210
22150     Def(Back)=Load(Back)
22160     FOR I=2 TO 50
22170        IF Bk(Back,I)=0 THEN 22200
22180        Def(Back)=Def(Back)-Op(Back,I)*Def(Bk(Back,I))
22190     NEXT I
22200     Def(Back)=Def(Back)/Op(Back,1)
22210  NEXT Back
22220  OUTPUT KBD;"K"; ! CLEAR SCREEN
22230  !
22240  ! LOAD PLATE_MOM TO DETERMINE MOMENTS
22250  !
22260  LOAD "PLATE_MOM:CS80,700,1"
22270  END
```

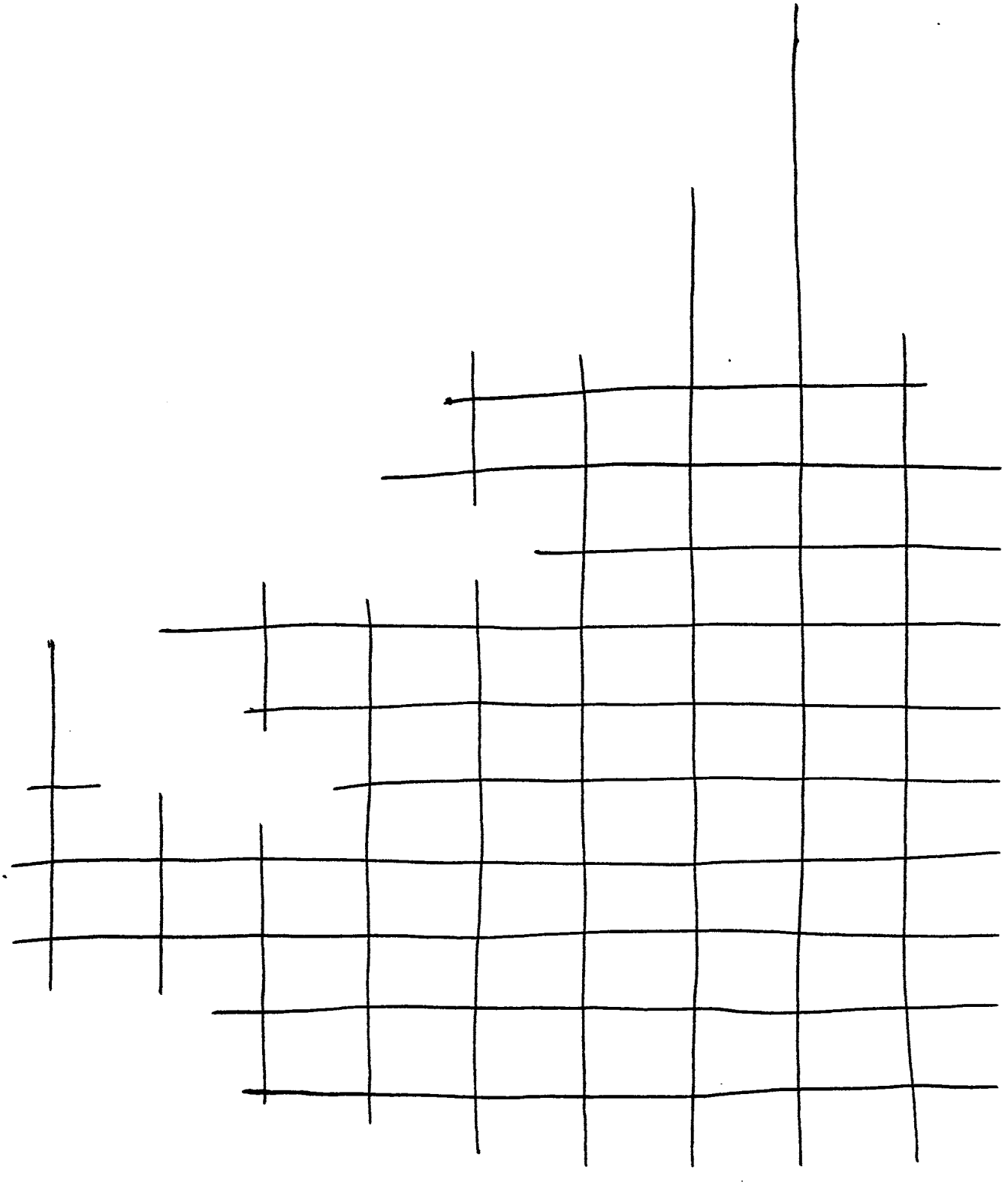


```
10      ! RE-STORE "PLATE_MOM:CS80,700,1"
20      !
30      ! THIS PROGRAM IS FOR DETERMINING THE MOMENTS IN THE PLATE
40      !
50      MASS STORAGE IS ":CS80,700,0"
60      OPTION BASE 1
70      COM /Matrices/ REAL Load(*),Def(*),Mx(*),My(*)
80      COM /Variables/ REAL A,B,H,W,E,Pr,T,D,INTEGER Nec,Eec,Wec,Sec
90      !
100     ! DETERMINE MOMENT X OPERATOR
110     !
120     PRINT "DETERMINING MOMENT X OPERATOR"
130     ALLOCATE REAL Om(441,5),INTEGER Bm(441,5)
140     Ctr=0
150     FOR I=1 TO 441
160        Ctr=Ctr+1
170        !
180        ! ROW 1 OF GRID POINTS
190        !
200        IF I>21 THEN 530
210        IF Ctr>1 THEN 290
220        IF Nec=3 THEN 240
230        GOTO 1150
240        IF Wec=1 THEN 260
250        GOTO 1150
260        Bm(I,1)=I+1
270        Om(I,1)=2*(1-(Pr^2))/(B^2)
280        GOTO 1150
290        IF Ctr>20 THEN 430
300        IF Nec>1 THEN 340
310        Bm(I,1)=I+21
320        Om(I,1)=(2*Pr)/(A^2)
330        GOTO 1150
340        IF Nec>2 THEN 360
350        GOTO 1150
360        Bm(I,1)=I-1
370        Bm(I,2)=I
380        Bm(I,3)=I+1
390        Om(I,1)=(1-(Pr^2))/(B^2)
400        Om(I,2)=-2*(1-(Pr^2))/(B^2)
410        Om(I,3)=(1-(Pr^2))/(B^2)
420        GOTO 1150
430        IF Nec=3 THEN 460
440        Ctr=0
450        GOTO 1150
460        IF Eec=1 THEN 490
470        Ctr=0
480        GOTO 1150
490        Bm(I,1)=I-1
500        Om(I,1)=2*(1-(Pr^2))/(B^2)
510        Ctr=0
520        GOTO 1150
530        !
540        ! ROWS 2 - 20 OF GRID POINTS
550        !
560        IF I>420 THEN 820
570        IF Ctr>1 THEN 630
580        IF Wec=1 THEN 600
590        GOTO 1150
600        Bm(I,1)=I+1
610        Om(I,1)=2/(B^2)
```

```
620       GOTO 1150
630       IF Ctr>20 THEN 750
640       Bm(I,1)=I-21
650       Bm(I,2)=I-1
660       Bm(I,3)=I
670       Bm(I,4)=I+1
680       Bm(I,5)=I+21
690       Om(I,1)=Pr/(A^2)
700       Om(I,2)=1/(B^2)
710       Om(I,3)=-2/(B^2)-(2*Pr)/(A^2)
720       Om(I,4)=1/(B^2)
730       Om(I,5)=Pr/(A^2)
740       GOTO 1150
750       IF Eec=1 THEN 780
760       Ctr=0
770       GOTO 1150
780       Bm(I,1)=I-1
790       Om(I,1)=2/(B^2)
800       Ctr=0
810       GOTO 1150
820       !
830       ! ROW 21 OF GRID POINTS
840       !
850       IF Ctr>1 THEN 930
860       IF Sec=3 THEN 880
870       GOTO 1150
880       IF Wec=1 THEN 900
890       GOTO 1150
900       Bm(I,1)=I+1
910       Om(I,1)=2*(1-(Pr^2))/(B^2)
920       GOTO 1150
930       IF Ctr>20 THEN 1070
940       IF Sec>1 THEN 980
950       Bm(I,1)=I-21
960       Om(I,1)=(2*Pr)/(A^2)
970       GOTO 1150
980       IF Sec>2 THEN 1080
990       GOTO 1150
1000      Bm(I,1)=I-1
1010      Bm(I,2)=I
1020      Bm(I,3)=I+1
1030      Om(I,1)=(1-(Pr^2))/(B^2)
1040      Om(I,2)=-2*(1-(Pr^2))/(B^2)
1050      Om(I,3)=(1-(Pr^2))/(B^2)
1060      GOTO 1150
1070      IF Sec=3 THEN 1100
1080      Ctr=0
1090      GOTO 1150
1100      IF Eec=1 THEN 1130
1110      Ctr=0
1120      GOTO 1150
1130      Bm(I,1)=I-1
1140      Om(I,1)=2*(1-(Pr^2))/(B^2)
1150  NEXT I
1160  OUTPUT KBD;"K"; ! CLEAR SCREEN
1170  !
1180  ! CALCULATE MOMENTS IN X
1190  !
1200  PRINT "CALCULATING MOMENTS IN X"
1210  FOR I=1 TO 441
1220     FOR J=1 TO 5
1230        IF Bm(I,J)=0 THEN 1260
1240        Mx(I)=Mx(I)+Om(I,J)*Def(Bm(I,J))*D
1250     NEXT J
1260  NEXT I
1270  MAT Om= (0)
```

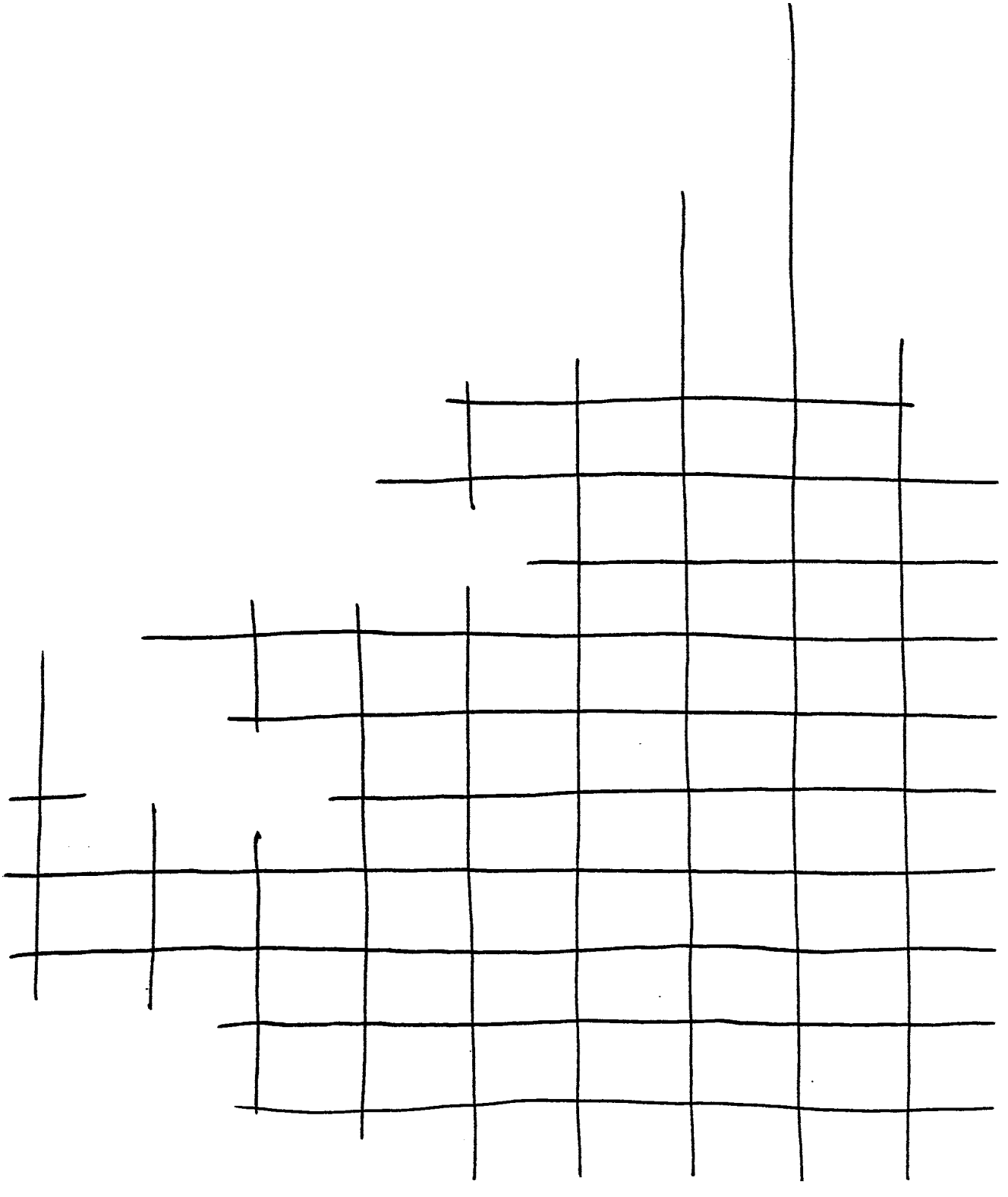
```
1280  MAT Bm= (0)
1290  OUTPUT KBD;"K"; ! CLEAR SCREEN
1300  !
1310  ! DETERMINE MOMENT Y OPERATOR
1320  !
1330  PRINT "DETERMINING MOMENT Y OPERATOR"
1340  Ctr=0
1350  FOR I=1 TO 441
1360     Ctr=Ctr+1
1370     !
1380     ! ROW 1 OF GRID POINTS
1390     !
1400     IF I>21 THEN 1600
1410     IF Ctr>1 THEN 1440
1420     IF Wec=3 THEN 1480
1430     GOTO 2270
1440     IF Ctr<21 THEN 1480
1450     IF Eec=3 THEN 1530
1460     Ctr=0
1470     GOTO 2270
1480     IF Nec=1 THEN 1500
1490     GOTO 2270
1500     Bm(I,1)=I+21
1510     Om(I,1)=2/(A^2)
1520     GOTO 2270
1530     IF Nec=1 THEN 1560
1540     Ctr=0
1550     GOTO 2270
1560     Bm(I,1)=I+21
1570     Om(I,1)=2*(1-(Pr^2))/(A^2)
1580     Ctr=0
1590     GOTO 2270
1600     !
1610     ! ROWS 2 - 20 OF GRID POINTS
1620     !
1630     IF I>420 THEN 2060
1640     IF Ctr>1 THEN 1780
1650     IF Wec>1 THEN 1690
1660     Bm(I,1)=I+1
1670     Om(I,1)=(2*Pr)/(B^2)
1680     GOTO 2270
1690     IF Wec>2 THEN 1710
1700     GOTO 2270
1710     Bm(I,1)=I-21
1720     Bm(I,2)=I
1730     Bm(I,3)=I+21
1740     Om(I,1)=(1-(Pr^2))/(A^2)
1750     Om(I,2)=-2*(1-(Pr^2))/(A^2)
1760     Om(I,3)=(1-(Pr^2))/(A^2)
1770     GOTO 2270
1780     IF Ctr>20 THEN 1900
1790     Bm(I,1)=I-21
1800     Bm(I,2)=I-1
1810     Bm(I,3)=I
1820     Bm(I,4)=I+1
1830     Bm(I,5)=I+21
1840     Om(I,1)=1/(A^2)
1850     Om(I,2)=Pr/(B^2)
1860     Om(I,3)=(-2*Pr)/(B^2)-2/(A^2)
1870     Om(I,4)=Pr/(B^2)
1880     Om(I,5)=1/(A^2)
1890     GOTO 2270
1900     IF Eec>1 THEN 1950
1910     Bm(I,1)=I-1
1920     Om(I,1)=(2*Pr)/(B^2)
1930     Ctr=0
```

```
1940      GOTO 2270
1950      IF Eec>2 THEN 1980
1960      Ctr=0
1970      GOTO 2270
1980      Bm(I,1)=I-21
1990      Bm(I,2)=I
2000      Bm(I,3)=I+21
2010      Om(I,1)=(1-(Pr^2))/(A^2)
2020      Om(I,2)=-2*(1-(Pr^2))/(A^2)
2030      Om(I,3)=(1-(Pr^2))/(A^2)
2040      Ctr=0
2050      GOTO 2270
2060      !
2070      ! ROW 21 OF GRID POINTS
2080      !
2090      IF Ctr>1 THEN 2120
2100      IF Wec=3 THEN 2160
2110      GOTO 2270
2120      IF Ctr<21 THEN 2160
2130      IF Eec=3 THEN 2210
2140      Ctr=0
2150      GOTO 2270
2160      IF Sec=1 THEN 2180
2170      GOTO 2270
2180      Bm(I,1)=I-21
2190      Om(I,1)=2/(A^2)
2200      GOTO 2270
2210      IF Sec=1 THEN 2240
2220      Ctr=0
2230      GOTO 2270
2240      Bm(I,1)=I-21
2250      Om(I,1)=2*(1-(Pr^2))/(A^2)
2260      Ctr=0
2270  NEXT I
2280  OUTPUT KBD;"K"; ! CLEAR SCREEN
2290  !
2300  ! CALCULATE MOMENTS IN Y
2310  !
2320  PRINT "CALCULATING MOMENTS IN Y"
2330  FOR I=1 TO 441
2340     FOR J=1 TO 5
2350        IF Bm(I,J)=0 THEN 2380
2360        My(I)=My(I)+Om(I,J)*Def(Bm(I,J))*D
2370     NEXT J
2380  NEXT I
2390  OUTPUT KBD;"K"; ! CLEAR SCREEN
2400  DEALLOCATE Om(*),Bm(*)
2410  !
2420  ! GO TO PLATE_OUT FOR OUTPUT
2430  !
2440  LOAD "PLATE_OUT:CS80,700,1"
2450  END
```



```
10     ! RE-STORE "PLATE_OUT:CS80,700,1"
20     !
30     ! THIS PROGRAM IS FOR OUTPUTTING THE DEFLECTIONS AND MOMENTS AT EACH POINT
40     ! OF THE PLATE
50     !
60     MASS STORAGE IS ":CS80,700,0"
70     OPTION BASE 1
80     COM /Matrices/ REAL Load(*),Def(*),Mx(*),My(*)
90     COM /Variables/ REAL A,B,H,W,E,Pr,T,D,INTEGER Nec,Eec,Wec,Sec
100    DIM Tit$[60],Date$[20]
110    !
120    ! CALCULATE POINT LOCATIONS
130    !
140    DIM Loc(441,2)
150    FOR I=1 TO 21
160       Ad=(I-1)*21
170       FOR J=1 TO 21
180          K=Ad+J
190          Loc(K,1)=(J-1)*B
200          Loc(K,2)=(I-1)*A
210       NEXT J
220    NEXT I
230    !
240    ! CONVERT DEFLECTIONS TO INCHES FROM FEET
250    !
260    FOR I=1 TO 441
270       Def(I)=Def(I)*12
280    NEXT I
290    !
300    ! PRINT OUT DATA
310    !
320    PRINT "PROJECT NAME ?"
330    INPUT Tit$
340    OUTPUT KBD;"K"; ! CLEAR SCREEN
350    PRINT "WHAT IS TODAY'S DATE ?"
360    INPUT Date$
370    OUTPUT KBD;"K"; ! CLEAR SCREEN
380    PRINTER IS PRT
390    Page=0
400    Ctr=0
410    FOR Out=1 TO 21
420       Ctr=Ctr+1
430       IF Ctr>1 THEN 510
440       Page=Page+1
450       PRINT USING "60A,""PAGE"",DD";Tit$,Page
460       PRINT Date$
470       PRINT
480       PRINT
490       PRINT "POINT #    X(ft)    Y(ft)    DEFLECTION(in)    MOMENT X (ft-k)    M
OMENT Y (ft-k)"
500       PRINT
510       Ad=(Out-1)*21
520       FOR I=1 TO 21
530          J=I+Ad
540          PRINT USING "1X,DDD,6X,3D.2D,2X,3D.2D,5X,MD.2DE,9X,MD.2DE,9X,MD.2DE"
;J,Loc(J,1),Loc(J,2),Def(J),Mx(J),My(J)
550       NEXT I
560       IF Ctr=1 THEN 600
570       PRINT USING "@,#"
580       Ctr=0
```

```
600         PRINT
610         PRINT
620         PRINT
630     NEXT Out
640     PRINTER IS CRT
650     STOP
660     END
```



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