

```
1: "VERSION 3.1"
2: Lbl 5
3: ClrHome
4: Disp "SIMPLEX METHOD"
5: Disp "NUMBER OF"
6: Input "VARIABLES:",Q
7: Input "CONSTRAINTS:",C
8: C→Z
9: prgmTOSTR
10: "ENTER A "+Str9+"X"→Str1
11: Q+1→Z
12: prgmTOSTR
13: Str1+Str9→Str9
14: Disp Str9
15: Disp "MATRIX HOLDING"
16: Input "CONSTRAINTS: ", [C]
17: dim([C])→L :L (1)→E:L (2)→F
18: "VERIFY THAT THE SIZE IS CORRECT"
19: If C≠E
20: Then
21: Disp "NUM ROWS DOES"
22: Disp "NOT MATCH NUM"
23: Disp "OF CONSTRAINTS"
24: Pause "ENTER TO RE-START"
25: Goto 5
26: End
27: If F≠(Q+1)
28: Then
29: Disp "NUM COLS DOES"
30: Disp "NOT MATCH NUM "
31: Disp "VARIABLES + 1"
32: Pause "ENTER TO RE-START"
33: Goto 5
34: End
35: "WE HAVE THE CORRECT NUMBER OF ROWS"
36: "AND COLUMNS. GET OBJECTIVE FUNCTION. "
37: Lbl 7
38: Disp "ENTER THE "
39: Disp "OBJECTIVE "
40: Disp "FUNCTION AS A"
41: Disp "LIST."
42: Input "Z=",L2
43: dim(L2)→H
44: If H≠Q
45: Then
46: Disp "NUM VARIABLES "
47: Disp "IN OBJECTIVE "
48: Disp "FUNCTION IS"
49: Disp "NOT CORRECT."
```

```
50: Pause "ENTER TO TRY AGAIN"
51: Goto 7
52: End
53: Lbl 10
54: Disp "CHOOSE:"
55: Disp " 0=MINIMIZE"
56: Disp " 1=MAXIMIZE"
57: Input "CHOICE: ",M
58: If M≠1
59: Then
60: If M≠0
61: Then
62: Disp "INVALID CHOICE"
63: Goto 10
64: End
65: -1→M
66: End
67: Disp "MAKING TABLEAU"
68: E→dim(L3)
69: For(I,1,E)
70: Q+I→L3(I)
71: End
72: E+1→E:F+E→F
73: {E,F}→dim([C])
74: For(I,1,Q)
75: -L2(I)*M→[C](E,I)
76: End
77: For(I,1,E)
78: [C](I,Q+1)→[C](I,F)
79: 0→[C](I,Q+1)
80: 1→[C](I,Q+I)
81: End
82: Pause [C]▶Frac
83: Disp "PREPROCESSING"
84: Lbl 15
85: 0→N:0→R
86: For(I,1,E-1)
87: If [C](I,F)<N
88: Then
89: [C](I,F)→N
90: I→R
91: End
92: End
93: If N=0
94: Then
95: Disp "NO NEGATIVE "
96: Disp "VALUE IN"
97: Pause "LAST COLUMN"
98: Goto 20
```

```
99: End
100: Disp "WORK ROW"
101: Disp R
102: R→Z
103: prgmTOSTR
104: "PIVOT AT "+Str9+", "→Str1
105: Ø→N:Ø→W
106: For(I,1,F-1)
107: If [C](R,I)<N
108: Then
109: [C](R,I)→N
110: I→W
111: End
112: End
113: If N=Ø
114: Then
115: Disp "NO NEGATIVE "
116: Disp "VALUE FOUND IN", "WORK ROW"
117: Pause "NO SOLUTION..."
118: Goto 35
119: End
120: Disp "WORK COLUMN"
121: Disp W
122: W→L3(R)
123: W→T
124: W→Z
125: prgmTOSTR
126: Str1+Str9→Str9
127: T→W
128: *row(1/N, [C], R)→[C]
129: 1→[C](R,W)
130: For(I,1,F)
131: If abs([C](R,I))<1E-10
132: Ø→[C](R,I)
133: End
134: For(I,1,E)
135: If I≠R
136: Then
137: [C](I,W)→G
138: If G≠Ø
139: *row+(-G, [C], R, I)→[C]
140: Ø→[C](I,W)
141: For(J,1,E)
142: If abs([C](I,J))<1E-10
143: Ø→[C](I,J)
144: End
145: End
146: End
147: Pause Str9
```

```
148: Pause [C]▶Frac
149: Goto 15
150: Lbl 20
151: Disp "DONE", "PREPROCESSING"
152: Pause [C]▶Frac
153: Disp "START", "PROCESSING"
154: Lbl 25
155: Ø→N:Ø→W
156: For(I,1,F-1)
157: If [C](E,I)<N
158: Then
159: [C](E,I)→N
160: I→W
161: End
162: End
163: If N≠Ø
164: Then
165: Disp "WORK COLUMN IS"
166: Disp W
167: 1E99→A:Ø→R
168: For(I,1,E-1)
169: [C](I,W)→G
170: If G>Ø
171: Then
172: [C](I,F)/G→B
173: If B<A
174: Then
175: B→A
176: I→R
177: End
178: End
179: End
180: If R=Ø
181: Then
182: Disp "NO POSITIVE "
183: Disp "ENTRY FOUND --"
184: Pause "NO SOLUTION --"
185: Goto 35
186: End
187: Disp "PIVOT ROW IS"
188: Disp R
189: W→L3(R)
190: [C](R,W)→G
191: *row(1/G, [C],R)→[C]
192: 1→[C](R,W)
193: For(I,1,F)
194: If abs([C](R,I))<1E-10
195: Ø→[C](R,I)
196: End
```

```
197: For(I,1,E)
198: If I≠R
199: Then
200: [C](I,W)→G
201: *row+(-G,[C],R,I)→[C]
202: Ø→[C](I,W)
203: For(J,1,E)
204: If abs([C](I,J))<1E-10
205: Ø→[C](I,J)
206: End
207: End
208: End
209: Pause "PIVOT DONE"
210: Pause [C]▶Frac
211: Goto 25
212: End
213: Disp "DONE PROCESSING"
214: Disp "FINAL MATRIX:"
215: Pause [C]▶Frac
216: "LET US SEE IF WE CAN PRODUCE THE ACTUAL ANSWERS"
217: "MAXIMUM WHEN"→Str1
218: If M≠1
219: "MINIMUM WHEN"→Str1
220: Disp Str1
221: For(J,1,E-1)
222: L3(J)→I
223: If I≤Q
224: Then
225: Disp "VARIABLE NUM"
226: Disp I
227: Else
228: Disp "SLACK VAR NUM"
229: Disp I-Q
230: End
231: Disp "HAS THE VALUE"
232: Disp [C](J,F)
233: Pause "GO ON ... "
234: End
235: Disp "OBJECTIVE VALUE"
236: Disp [C](E,F)*M
237: Disp "DONE"
238: Disp "THAT IS ALL"
239: Pause "FOLKS"
240: Lbl 35
241: Pause [C]▶Frac
242: Stop
243:
```