```
1.0
x_8
    7.0
         +1.000000x_1 +2.000000x_2
                                       -3.000000x_4 + 1.000000x_5
                                                                     +3.000000x_7
x_9
    15.0
         x_{10}
x_{11}
    9.0
         -2.000000x_1 + 1.000000x_2 + 2.000000x_3
                                                 -1.000000x_5 -3.000000x_6 +1.000000x_7
    3.0
         +2.000000x_1 +3.000000x_2
                                       -1.000000x_4 - 1.000000x_5
                                                                     +3.000000x_7
x_{12}
    12.0
         +2.000000x_1 -2.000000x_2 +1.000000x_3
                                                 -1.000000x_5 + 1.000000x_6
x_{13}
    1.0
         +3.000000x_1 -1.000000x_2 -1.000000x_3 +3.000000x_4
                                                          +1.000000x_6 -1.000000x_7
x_{14}
x_{15}
         -3.000000x_1 - 1.000000x_2 - 2.000000x_3
                                                 +1.000000x_5 -2.000000x_6 -3.000000x_7
        +2.000000x_1 +2.000000x_2 +1.000000x_3 -2.000000x_4 +3.000000x_5 -3.000000x_6
    12.0
x_{16}
x_{1\underline{7}}
         -2.000000x_7
    0.0
         -1.000000x_1 + 2.000000x_2 + 1.000000x_3
                                                 -2.000000x_5
```

No initialization required –; Proceed to Optimize.

```
x_8
    7.0
       +1.000000x_1 +2.000000x_2
                                 -3.000000x_4 + 1.000000x_5
                                                           +3.000000x_7
x_9
   15.0
       x_{10}
   9.0
       -2.000000x_1 + 1.000000x_2 + 2.000000x_3
                                          -1.000000x_5 -3.000000x_6 +1.000000x_7
x_{11}
x_{12}
    3.0
       +2.000000x_1 +3.000000x_2
                                 -1.000000x_4 - 1.000000x_5
   12.0
       +2.000000x_1 -2.000000x_2 +1.000000x_3
                                          -1.000000x_5 + 1.000000x_6
x_{13}
x_{14}
    1.0
       +3.000000x_1 -1.000000x_2 -1.000000x_3 +3.000000x_4
                                                   +1.000000x_6 -1.000000x_7
    8.0
       -3.000000x_1 - 1.000000x_2 - 2.000000x_3
                                          +1.000000x_5 -2.000000x_6 -3.000000x_7
x_{15}
   12.0
       x_{16}
   10.0
       x_{17}
   0.0
       -1.000000x_1 + 2.000000x_2 + 1.000000x_3
                                          -2.000000x_5
                                                            -2.000000x_7
z
```

 $x_2$  enters and  $x_{14}$  leaves

```
4.0
       x_8
   9.0
       x_9
   14.0
       -5.000000x_1 + 1.000000x_{14} - 1.000000x_3 - 1.000000x_4 + 1.000000x_5 + 2.000000x_6 + 2.000000x_7
x_{10}
x_{11}
   10.0
       +1.000000x_1 -1.000000x_{14} + 1.000000x_3 +3.000000x_4 -1.000000x_5 - 2.000000x_6
   6.0
       +11.000000x_1 -3.000000x_{14} -3.000000x_3 +8.000000x_4 -1.000000x_5 +3.000000x_6
x_{12}
   10.0
       -4.000000x_1 + 2.000000x_{14} + 3.000000x_3 - 6.000000x_4 - 1.000000x_5 - 1.000000x_6 + 2.000000x_7
x_{13}
   1.0
       +3.000000x_1 -1.000000x_{14} -1.000000x_3 +3.000000x_4
                                                 +1.000000x_6 -1.000000x_7
x_2
   7.0
       x_{15}
       14.0
x_{16}
   9.0
       -5.000000x_1 + 1.000000x_{14} + 3.000000x_3 - 6.000000x_4 + 2.000000x_5 + 1.000000x_6 + 2.000000x_7
x_{17}
   2.0
```

 $x_1$  enters and  $x_{15}$  leaves

```
18.0
        -2.000000x_{15} -1.000000x_{14} -7.000000x_3 +4.000000x_4
                                        -9.000000x_7
x_8
  17.1666666667
        x_9
        8.16666666667
x_{10}
  11.1666666667
        x_{11}
        18.8333333333
x_{12}
  5.33333333333
        +0.666667x_{15}+1.3333333x_{14}+3.666667x_3-4.000000x_4-1.666667x_5+1.000000x_6+3.333333x_7
x_{13}
        4.5
x_2
  1.16666666667
        x_1
        -1.333333x_{15} -0.666667x_{14} -2.3333333x_3
                             +4.333333x_5 -5.000000x_6 -4.666667x_7
  23.3333333333
x_{16}
x_{1\underline{7}}
  3.16666666667
        7.83333333333
```

 $x_4$  enters and  $x_{17}$  leaves

```
-1.047619x_{15} - 0.809524x_{14} - 2.619048x_3 - 1.142857x_{17} + 1.3333333x_5 + 4.000000x_6 - 4.809524x_7
    21.619047619
x_8
    16.7142857143
               x_9
x_{10}
    9.52380952381
               13.4285714286
               +0.428571x_{15} -0.714286x_{14} +3.571429x_3 -0.714286x_{17} +0.000000x_5
                                                                    +2.285714x_7
x_{11}
               -1.238095x_{15} -1.047619x_{14} -2.095238x_3 -0.714286x_{17} +1.666667x_5
    21.0952380952
                                                                    -1.047619x_7
x_{12}
    1.71428571429
               x_{13}
x_2
    5.85714285714
               -0.142857x_{15} - 0.428571x_{14} + 0.142857x_3 - 0.428571x_{17} + 1.000000x_5 + 1.000000x_6 - 0.428571x_7
               x_1
   0.714285714286
x_{16}
    23.3333333333
               -1.333333x_{15} -0.666667x_{14} -2.3333333x_{3}
                                                   +4.333333x_5 -5.000000x_6 -4.666667x_7
   0.904761904762
               x_4
                        -1.000000x_{14} + 2.000000x_3 - 1.000000x_{17}
                                                           +3.000000x_6 -2.000000x_7
       11.0
z
```

 $x_3$  enters and  $x_1$  leaves

```
+0.000000x_{15} - 1.333333x_{14} + 3.666667x_1 - 1.666667x_{17} + 1.333333x_5 + 7.666667x_6 - 1.666667x_7 + 1.66
   x_8
                                                                       +0.200000x_{15} - 1.600000x_{14} + 5.200000x_1 - 0.600000x_{17} + 2.000000x_5 + 3.200000x_6 + 2.600000x_7
   x_9
                                 13.0
x_{10}
                                11.0
                                                                       17.0
                                                                                                                                                                                                                                              -5.000000x_1 + 0.000000x_{17} - 0.000000x_5 - 5.000000x_6 - 2.000000x_7
                                                                       -1.000000x_{15}
 x_{11}
                                 19.0
                                                                       -0.400000x_{15} - 1.466667x_{14} + 2.9333333x_{1} - 1.133333x_{17} + 1.666667x_{5} + 2.9333333x_{6} + 1.466667x_{7} + 1.4666
 x_{12}
                                                                       -0.000000x_{15} + 1.000000x_{14} + 1.000000x_1 + 1.000000x_{17} - 3.000000x_5 - 2.000000x_6 - 0.000000x_7
x_{13}
                                    1.0
                                    6.0
                                                                       x_2
                                                                        x_3
                                    1.0
                                 21.0
                                                                       -0.400000x_{15} - 1.1333333x_{14} + 3.266667x_1 - 0.466667x_{17} + 4.333333x_5 - 1.733333x_6 - 1.866667x_{17} + 4.333333x_5 - 1.866667x_{17} + 1.866667x_{17}
 x_{16}
                                    2.0
                                                                        x_4
                                                                      13.0
```

 $x_6$  enters and  $x_{13}$  leaves

```
22.8333333333
                                                                                     -0.000000x_{15} + 2.500000x_{14} + 7.500000x_1 + 2.166667x_{17} - 10.166667x_5 - 3.833333x_{13} - 1.666667x_{17} - 10.166667x_{17} - 10.
 x_8
                                                                                                                                                                                                   +6.800000x_1 + 1.000000x_{17} - 2.800000x_5 - 1.600000x_{13} + 2.600000x_7
                                         14.6
                                                                                       +0.200000x_{15}
 x_9
                     12.9666666667
                                                                                      +0.600000x_{15} + 2.500000x_{14} - 0.100000x_1 + 1.833333x_{17} - 5.233333x_5 - 1.966667x_{13} + 3.466667x_{17} + 1.8333333x_{17} - 5.233333x_{17} - 5.23333x_{17} - 5.2333x_{17} - 5.23333x_{17} - 5.2333x_{17} - 5.2333x_{17} - 5.2333x_{17} - 5.2333x_{17} - 5.2333x_{17} - 5.233x_{17} - 5.23x_{17} - 5.23x_
x_{10}
x_{11}
                                         14.5
                                                                                      -1.000000x_{15} - 2.500000x_{14} - 7.500000x_1 - 2.500000x_{17} + 7.500000x_5 + 2.500000x_{13} - 2.000000x_7
                     20.4666666667
                                                                                                                                                                                                  +4.400000x_1 + 0.333333x_{17} - 2.7333333x_5 - 1.466667x_{13} + 1.466667x_7
                                                                                     -0.400000x_{15}
x_{12}
                                           0.5
                                                                                       x_6
                                                                                      6.4
 x_2
 x_3
                                           0.3
                                                                                      20.1333333333
                                                                                     x_{16}
                     1.73333333333
                                                                                      x_4
                                                                                      13.1
    z
```

 $x_{-1}$  enters and Final Dictionary Solution: 13.1 Num Pivots: 5