```
3.0
        +3.000000x_1 +2.000000x_2
                                                -1.000000x_5
                                                                   +3.000000x_7
x_8
                  +2.000000x_2 -1.000000x_3 -1.000000x_4 +1.000000x_5 -2.000000x_6
    5.0
x_9
    1.0
        x_{10}
x_{11}
    9.0
                   -1.000000x_2 -3.000000x_3 -1.000000x_4 +3.000000x_5 -3.000000x_6 -1.000000x_7
        8.0
x_{12}
    4.0
        x_{13}
                                                                   +2.000000x_7
    10.0
        -1.000000x_1
                            -2.000000x_3 + 2.000000x_4
x_{14}
x_{15}
    6.0
        +2.000000x_1 +1.000000x_2 +1.000000x_3 -2.000000x_4
                                                          -2.000000x_6 -3.000000x_7
                                                         -1.000000x_6 + 3.000000x_7
        +1.000000x_1 +2.000000x_2 -3.000000x_3 +1.000000x_4
    3.0
x_{16}
x_{1\underline{7}}
    13.0
        -2.000000x_1 -1.000000x_2 -1.000000x_3
                                                +3.000000x_5 -1.000000x_6
    0.0
        -2.000000x_1
                            +1.000000x_3 +1.000000x_4 -2.000000x_5 -1.000000x_6
z
```

No initialization required –; Proceed to Optimize.

```
+3.000000x_1 +2.000000x_2
x_8
     3.0
                                                      -1.000000x_5
                                                                            +3.000000x_7
     5.0
                     +2.000000x_2 -1.000000x_3 -1.000000x_4 +1.000000x_5 -2.000000x_6
x_9
     1.0
          x_{10}
     9.0
                     -1.000000x_2 -3.000000x_3 -1.000000x_4 +3.000000x_5 -3.000000x_6 -1.000000x_7
x_{11}
x_{12}
     8.0
          +3.000000x_1 + 1.000000x_2 + 1.000000x_3 + 1.000000x_4 - 2.000000x_5 + 2.000000x_6 + 3.000000x_7
     4.0
x_{13}
x_{14}
    10.0
                                -2.000000x_3 + 2.000000x_4
                                                                            +2.000000x_7
     6.0
          +2.000000x_1 +1.000000x_2 +1.000000x_3 -2.000000x_4
                                                                 -2.000000x_6 -3.000000x_7
x_{15}
x_{16}
     3.0
          +1.000000x_1 +2.000000x_2 -3.000000x_3 +1.000000x_4
                                                                 -1.000000x_6 + 3.000000x_7
          -2.000000x_1 -1.000000x_2 -1.000000x_3
    13.0
                                                      +3.000000x_5 -1.000000x_6
x_{17}
     0.0
          -2.000000x_1
                                +1.000000x_3 +1.000000x_4 -2.000000x_5 -1.000000x_6
 z
```

 x_3 enters and x_{16} leaves

```
-1.000000x_5
   3.0
      +3.000000x_1 +2.000000x_2
                                                    +3.000000x_7
x_8
   4.0
      x_9
   4.0
              -1.000000x_2 -1.000000x_{16} -2.000000x_4 +1.000000x_5 +2.000000x_6
x_{10}
x_{11}
   6.0
      5.0
              -4.000000x_2 + 1.000000x_{16} + 1.000000x_4 - 3.000000x_5 + 2.000000x_6 - 1.000000x_7
x_{12}
   5.0
      x_{13}
   8.0
      -1.666667x_1 - 1.3333333x_2 + 0.666667x_{16} + 1.3333333x_4
                                             +0.666667x_6
x_{14}
   7.0
      +2.333333x_1 +1.666667x_2 -0.3333333x_{16} -1.666667x_4
                                             -2.3333333x_6 -2.000000x_7
x_{15}
   1.0
      +0.333333x_1 +0.666667x_2 -0.333333x_{16} +0.333333x_4
                                             -0.3333333x_6 + 1.0000000x_7
x_3
   12.0
      x_{17}
   1.0
```

 x_2 enters and x_{12} leaves

```
5.5
              x_8
   5.66666666667
              -0.333333x_1 - 0.3333333x_{12} + 0.666667x_{16} - 1.000000x_4
                                                          -1.000000x_6 - 1.333333x_7
x_9
                      +0.250000x_{12} - 1.250000x_{16} - 2.250000x_4 + 1.750000x_5 + 1.500000x_6 + 0.250000x_7
      2.75
x_{10}
x_{11}
      2.25
              -1.000000x_1 + 0.750000x_{12} + 0.250000x_{16} - 2.750000x_4 + 5.250000x_5 - 3.500000x_6 - 3.250000x_7
      1.25
                       -0.250000x_{12} + 0.250000x_{16} + 0.250000x_4 - 0.750000x_5 + 0.500000x_6 - 0.250000x_7
x_2
   7.08333333333
              x_{13}
   6.33333333333
              -1.666667x_1 + 0.3333333x_{12} + 0.3333333x_{16} + 1.0000000x_4 + 1.0000000x_5
x_{14}
                                                                  +0.333333x_7
x_{15}
   9.08333333333
              +0.333333x_1 -0.166667x_{12} -0.166667x_{16} +0.500000x_4 -0.500000x_5
   1.83333333333
                                                                  +0.833333x_7
x_3
              9.91666666667
x_{17}
   1.83333333333
```

 x_4 enters and x_{11} leaves

```
+2.818182x_1 - 0.363636x_{12} + 0.545455x_{16} - 0.181818x_{11} - 1.545455x_5 + 0.363636x_6 + 1.909091x_7
                        5.90909090909
  x_8
                       4.84848484848
                                                                                           +0.030303x_1 - 0.606061x_{12} + 0.575758x_{16} + 0.363636x_{11} - 1.909091x_5 + 0.272727x_6 - 0.151515x_7
  x_9
 x_{10}
                     0.909090909091
                                                                                           +0.818182x_1 - 0.363636x_{12} - 1.454545x_{16} + 0.818182x_{11} - 2.545455x_5 + 4.363636x_6 + 2.909091x_7 + 0.818182x_{11} - 2.545455x_5 + 4.363636x_6 + 2.909091x_7 + 0.818182x_{11} - 2.545455x_5 + 0.818182x_{12} - 2.545455x_5 + 0.818182x_{13} + 0.818182x_{14} + 0.818182x_{15} + 0.818182x_{15
                     0.818181818182
                                                                                           x_4
                                                                                           1.45454545455
 x_2
                                                                                           +2.696970x_1 + 0.0606060x_{12} + 0.242424x_{16} - 0.636364x_{11} + 0.090909x_5 + 0.272727x_6 + 1.515152x_7
                        8.51515151515
x_{13}
                         7.15151515152
                                                                                           x_{14}
                                                                                           +2.787879x_1 - 0.757576x_{12} - 0.030303x_{16} + 0.454545x_{11} - 3.636364x_5 + 0.090909x_6 - 0.939394x_7
x_{15}
                        8.06060606061
 x_3
                        2.24242424242
                                                                                           +0.151515x_1 - 0.030303x_{12} - 0.121212x_{16} - 0.181818x_{11} + 0.454545x_5 - 0.636364x_6 + 0.242424x_7
                        9.30303030303
                                                                                             x_{17}
                        3.06060606061
                                                                                            -2.212121x_1 + 0.242424x_{12} - 0.030303x_{16} - 0.545455x_{11} + 0.363636x_5 - 2.909091x_6 - 0.939394x_7 - 0.030303x_{16} - 0.03030x_{16} - 0.030303x_{16} - 0.03030x_{16} - 0.0300x_{16} - 0.0300x_{16} - 0.0300x_{16} - 0.0300x_{16} - 0.0000x_{16} - 0.0000x_{16
    z
```

 x_5 enters and x_{10} leaves

```
+2.321429x_{1}\\ -0.142857x_{12}\\ +1.428571x_{16}\\ -0.678571x_{11}\\ +0.607143x_{10}\\ -2.285714x_{6}\\ +0.142857x_{7}\\ +0.007143x_{10}\\ +0.0071
                        5.35714285714
  x_8
                                                                                             x_9
                        4.166666666667
                     0.357142857143
                                                                                           x_5
                                                                                             +0.250000x_1 + 0.000000x_{12} - 1.000000x_{16} + 0.250000x_{11} - 0.750000x_{10} + 2.000000x_6 + 1.000000x_7
                                               1.5
  x_4
                        1.35714285714
                                                                                            x_2
x_{13}
                                                                                           +2.726190x_1 + 0.047619x_{12} + 0.190476x_{16} - 0.607143x_{11} - 0.035714x_{10} + 0.428571x_6 + 1.619048x_7
                        8.54761904762
                        8.19047619048
                                                                                            -1.095238x_1 + 0.190476x_{12} - 1.238095x_{16} + 0.571429x_{11} - 1.142857x_{10} + 3.714286x_6 + 2.476190x_7 + 2.47610x_7 
x_{14}
x_{15}
                          6.7619047619
                                                                                            2.40476190476
                                                                                           x_3
                                                                                             -1.154762x_1 - 0.190476x_{12} - 1.761905x_{16} + 1.178571x_{11} - 1.107143x_{10} + 4.285714x_6 + 3.523810x_7
x_{17}
                         10.3095238095
                                                                                            -2.095238x_1 + 0.190476x_{12} - 0.238095x_{16} - 0.428571x_{11} - 0.142857x_{10} - 2.285714x_6 - 0.523810x_7
                        3.19047619048
```

 x_{12} enters and x_5 leaves

```
5.0
              +2.000000x_1 + 1.000000x_5 + 2.000000x_{16} - 1.000000x_{11} + 1.000000x_{10} - 4.000000x_6 - 1.000000x_7
x_8
   3.33333333333
              -1.333333x_1 + 2.333333x_5 + 3.000000x_{16} - 1.000000x_{11} + 1.666667x_{10} - 7.000000x_6 - 5.000000x_7
x_9
       2.5
              x_{12}
       1.5
              +0.250000x_1 -0.000000x_5 -1.000000x_{16} +0.250000x_{11} -0.750000x_{10} +2.000000x_6 +1.000000x_7
x_4
       1.0
              x_2
   8.6666666667
              x_{13}
   8.6666666667
              x_{14}
x_{15}
   6.16666666667
              +1.083333x_1 + 1.666667x_5 + 3.000000x_{16} - 1.250000x_{11} + 2.083333x_{10} - 9.000000x_6 - 7.000000x_7
              +0.083333x_1 + 0.666667x_5 + 0.000000x_{16} - 0.250000x_{11} + 0.083333x_{10} - 1.000000x_6 - 0.000000x_7
   2.16666666667
x_3
   9.8333333333
              x_{17}
   3.66666666667
              -1.666667x_1 - 1.333333x_5 - 1.000000x_{16} + 0.000000x_{11} - 0.666667x_{10} + 0.000000x_6 + 1.000000x_7
```

 x_6 enters and x_9 leaves

```
3.09523809524
                                                      +2.761905x_1 - 0.3333333x_5 + 0.285714x_{16} - 0.428571x_{11} + 0.047619x_{10} + 0.571429x_9 + 1.857143x_7
 x_8
              0.47619047619
                                                       -0.190476x_1 + 0.333333x_5 + 0.428571x_{16} - 0.142857x_{11} + 0.238095x_{10} - 0.142857x_9 - 0.714286x_7
 x_6
x_{12}
              8.21428571429
                                                       -0.035714x_1 - 3.000000x_5 + 1.142857x_{16} + 0.535714x_{11} + 0.107143x_{10} - 1.714286x_9 - 0.571429x_7
              2.45238095238
                                                       x_4
                                                      0.047619047619
x_2
              9.14285714286
                                                                                                                     +0.428571x_{16} -0.642857x_{11} +0.071429x_{10} -0.142857x_9 +1.285714x_7
                                                       +2.642857x_1
x_{13}
              11.5238095238
                                                       x_{14}
                                                      +2.797619x_1 - 1.333333x_5 - 0.857143x_{16} + 0.035714x_{11} - 0.059524x_{10} + 1.285714x_9 - 0.571429x_7 + 0.059524x_{10} + 0.05524x_{10} + 0.05524x_{10} + 0.05524x_{10} + 0.05524x_{10} + 0.05524x_{10} + 0.0
x_{15}
              1.88095238095
x_3
              1.69047619048
                                                       +0.273810x_1 + 0.3333333x_5 - 0.428571x_{16} - 0.107143x_{11} - 0.154762x_{10} + 0.142857x_9 + 0.714286x_7
              10.7857142857
                                                       x_{17}
              3.6666666667
                                                       -1.666667x_1 - 1.3333333x_5 - 1.000000x_{16} + 0.000000x_{11} - 0.666667x_{10} - 0.000000x_9 + 1.000000x_7
  z
```

 x_7 enters and x_2 leaves

```
3.25
                  +2.375000x_1 + 0.750000x_5 + 0.750000x_{16} - 1.125000x_{11} + 0.125000x_{10} + 1.500000x_9 - 3.250000x_2
x_8
    0.416666666667
                  x_6
     8.1666666667
                  +0.083333x_1 -3.333333x_5 +1.000000x_{16} +0.750000x_{11} +0.083333x_{10} -2.000000x_9 +1.000000x_2
x_{12}
                  -0.041667x_1 + 0.416667x_5 - 0.250000x_{16} + 0.125000x_{11} - 0.291667x_{10} - 0.500000x_9 + 0.750000x_2
     2.416666666667
x_4
    0.08333333333333
                  x_7
x_{13}
         9.25
                  +2.375000x_1 + 0.750000x_5 + 0.750000x_{16} - 1.125000x_{11} + 0.125000x_{10} + 0.500000x_9 - 2.250000x_2
         11.5
                  x_{14}
                  +2.916667x_1 - 1.666667x_5 - 1.000000x_{16} + 0.250000x_{11} - 0.083333x_{10} + 1.000000x_9 + 1.000000x_2
x_{15}
     1.83333333333
         1.75
                  x_3
                                                 +0.250000x_{11} -0.083333x_{10} +0.000000x_9 -1.000000x_2
x_{17}
     10.8333333333
                  -2.0833333x_1 + 2.3333333x_5
                  -1.875000x_1 - 0.750000x_5 - 0.750000x_{16} - 0.375000x_{11} - 0.625000x_{10} + 0.500000x_9 - 1.750000x_2
         3.75
```

 x_9 enters and x_6 leaves

```
4.5
       x_8
x_9
 0.833333333333
       6.5
       x_{12}
x_4
   2.0
       +0.000000x_1 +0.500000x_5 -0.500000x_{16} +0.000000x_{11} -0.500000x_{10} +1.000000x_6 -0.500000x_2
   0.5
       x_7
       9.6666666667
x_{13}
 10.666666667
       x_{14}
       x_{15}
 2.66666666667
       2.166666666667
x_3
 10.8333333333
       x_{17}
       -1.916667x_1 - 0.833333x_5 - 0.500000x_{16} - 0.250000x_{11} - 0.416667x_{10} - 1.000000x_6 - 0.500000x_2
 4.16666666667
```

 x_{-1} enters and Final Dictionary Solution: 4.16666666667 Num Pivots: 8