```
15.0
          x_8
     1.0
          -1.000000x_1
                                 -2.000000x_3 + 2.000000x_4 + 2.000000x_5 - 2.000000x_6 - 1.000000x_7
x_9
          -3.000000x_1 -2.000000x_2 -1.000000x_3 -3.000000x_4 \\
     1.0
                                                                   +1.000000x_6 -3.000000x_7
x_{10}
x_{11}
     8.0
                     +2.000000x_2
                                            +3.000000x_4 - 2.000000x_5 + 2.000000x_6 - 1.000000x_7
     3.0
          +1.000000x_1 -2.000000x_2
                                            -3.000000x_4 + 3.000000x_5 - 1.000000x_6 - 2.000000x_7
x_{12}
    15.0
                     +3.000000x_2 +3.000000x_3 +2.000000x_4
                                                                   +3.000000x_6 +1.000000x_7
x_{13}
          +2.000000x_1
                                 -3.000000x_3 -3.000000x_4 -1.000000x_5 -1.000000x_6
    14.0
x_{14}
x_{15}
    15.0
          -3.000000x_1 + 2.0000000x_2 - 2.0000000x_3 + 1.0000000x_4
     6.0
                                                                   +1.000000x_6 -1.000000x_7
x_{16}
x_{1\underline{7}}
    10.0
                      -2.000000x_2
                                            +1.000000x_4 -1.000000x_5 +2.000000x_6 -1.000000x_7
     0.0
 z
          -2.000000x_1 - 1.000000x_2 + 1.000000x_3
                                                        +1.000000x_5 +1.000000x_6 +1.000000x_7
```

No initialization required –; Proceed to Optimize.

```
-2.0000000x_1 - 1.000000x_2 - 3.000000x_3 + 3.000000x_4 - 1.000000x_5 + 3.000000x_6 - 1.000000x_7
x_8
     15.0
     1.0
           -1.000000x_1
                                    -2.000000x_3 + 2.000000x_4 + 2.000000x_5 - 2.000000x_6 - 1.000000x_7
x_9
     1.0
           -3.000000x_1 - 2.000000x_2 - 1.000000x_3 - 3.000000x_4
                                                                          +1.000000x_6 -3.000000x_7
x_{10}
                                                +3.000000x_4 -2.000000x_5 +2.000000x_6 -1.000000x_7
     8.0
                       +2.000000x_2
x_{11}
     3.0
           +1.000000x_1 -2.000000x_2
                                                 -3.000000x_4 + 3.000000x_5 - 1.000000x_6 - 2.000000x_7
x_{12}
                                                                          +3.000000x_6 +1.000000x_7
                        +3.000000x_2 +3.000000x_3 +2.000000x_4
     15.0
x_{13}
     14.0
           +2.0000000x_1
                                    -3.000000x_3 -3.000000x_4 -1.000000x_5 -1.000000x_6
x_{14}
     15.0
           x_{15}
     6.0
           -3.000000x_1 + 2.000000x_2 - 2.000000x_3 + 1.000000x_4
                                                                          +1.000000x_6 -1.000000x_7
x_{16}
     10.0
                        -2.000000x_2
                                                +1.000000x_4 -1.000000x_5 +2.000000x_6 -1.000000x_7
x_{17}
           -2.000000x_1 - 1.000000x_2 + 1.0000000x_3
     0.0
                                                             +1.000000x_5 +1.000000x_6 +1.000000x_7
z
```

 $x_3$  enters and  $x_9$  leaves

```
-0.500000x_1 - 1.000000x_2 + 1.500000x_9
                                                       -4.000000x_5 +6.000000x_6 +0.500000x_7
x_8
     13.5
     0.5
          -0.500000x_1
                                -0.500000x_9 + 1.000000x_4 + 1.0000000x_5 - 1.000000x_6 - 0.500000x_7
x_3
     0.5
          x_{10}
     8.0
                     +2.000000x_2
                                            +3.000000x_4 - 2.000000x_5 + 2.000000x_6 - 1.000000x_7
x_{11}
     3.0
          +1.000000x_1 -2.000000x_2
                                            -3.000000x_4 + 3.000000x_5 - 1.000000x_6 - 2.000000x_7
x_{12}
    16.5
          -1.500000x_1 + 3.000000x_2 - 1.500000x_9 + 5.000000x_4 + 3.000000x_5
x_{13}
                                +1.500000x_9 -6.000000x_4 -4.000000x_5 +2.000000x_6 +1.500000x_7
    12.5
          +3.500000x_1
x_{14}
    16.0
          x_{15}
     5.0
          -2.000000x_1 + 2.000000x_2 + 1.000000x_9 - 1.000000x_4 - 2.000000x_5 + 3.000000x_6
x_{16}
    10.0
                                           +1.000000x_4 -1.000000x_5 +2.000000x_6 -1.000000x_7
x_{17}
                     -2.000000x_2
     0.5
          -2.500000x_1 - 1.000000x_2 - 0.500000x_9 + 1.000000x_4 + 2.000000x_5
 z
                                                                              +0.500000x_7
```

 $x_4$  enters and  $x_{10}$  leaves

```
13.5
     -0.500000x_1 -1.000000x_2 +1.500000x_9
                         -4.000000x_5 +6.000000x_6 +0.500000x_7
x_8
  0.625
     x_3
  0.125
     x_4
x_{11}
  8.375
     -1.875000x_1 + 0.500000x_2 + 0.375000x_9 - 0.750000x_{10} - 2.750000x_5 + 3.500000x_6 - 2.875000x_7
  2.625
     x_{12}
  17.125
     x_{13}
  11.75
     x_{14}
x_{15}
  15.875
     -1.375000x_1 + 2.500000x_2 + 0.875000x_9 + 0.250000x_{10} - 1.750000x_5 + 2.500000x_6 + 0.625000x_7
  4.875
x_{16}
  10.125
     x_{17}
  0.625
```

 $x_5$  enters and  $x_4$  leaves

```
11.5
x_8
    1.0
        -3.000000x_1 -2.000000x_2
                                    -1.000000x_{10} -3.000000x_4 +1.000000x_6 -3.000000x_7
x_3
x_5
    0.5
        -2.500000x_1 -2.000000x_2 + 0.500000x_9 - 1.000000x_{10} -4.000000x_4 + 2.000000x_6 -2.500000x_7
    7.0
        x_{11}
        4.5
x_{12}
    18.0
        -9.000000x_1 -3.000000x_2
                                    -3.000000x_{10} -7.000000x_4 +6.000000x_6 -8.000000x_7
x_{13}
    10.5
        +13.500000x_1 + 8.000000x_2 - 0.500000x_9 + 4.000000x_{10} + 10.000000x_4 - 6.000000x_6 + 11.500000x_7
x_{14}
x_{15}
    17.5
        -5.500000x_1 -7.000000x_2 + 0.500000x_9 - 3.000000x_{10} - 13.000000x_4 + 3.000000x_6 -5.500000x_7
x_{16}
    4.0
        +3.000000x_1 +6.000000x_2
                                    +2.000000x_{10} +7.000000x_4 -1.000000x_6 +5.000000x_7
    9.5
                           -0.500000x_9 + 1.000000x_{10} + 5.000000x_4
                                                                 +1.500000x_7
x_{17}
        +2.500000x_1
    1.5
        z
```

 $x_6$  enters and  $x_{14}$  leaves

```
8.0
                               x_8
               2.75
                               x_3
                4.0
                                x_5
                3.5
                                +0.500000x_1 + 3.333333x_2 - 0.833333x_9 + 0.666667x_{10} + 7.666667x_4 + 0.3333333x_{14} + 0.166667x_{7}
x_{11}
              13.25
                               +4.750000x_1 - 1.333333x_2 + 1.083333x_9 + 0.333333x_{10} - 6.666667x_4 - 0.833333x_{14} + 0.083333x_{7} + 0.083333x_{10} - 0.0833333x_{10} + 0.0833333x_{10} - 0.0833333x_{10} + 0.083333x_{10} + 0.08333x_{10} + 0.08333x_{10} + 0.0833x_{10} + 0.083x_{10} + 0.083x_{10} + 0.083x_{10} + 0.083x_{10} + 0.08x_{10} 
x_{12}
x_{13}
               28.5
                               +4.500000x_1 + 5.000000x_2 - 0.500000x_9 + 1.000000x_{10} + 3.000000x_4 - 1.000000x_{14} + 3.500000x_7
               1.75
                               +2.250000x_1+1.333333x_2-0.083333x_9+0.666667x_{10}+1.666667x_4-0.166667x_{14}+1.916667x_{17}
x_6
x_{15}
             22.75
                               2.25
                               x_{16}
x_{17}
                9.5
                                                                                                -0.500000x_9 + 1.000000x_{10} + 5.000000x_4
                                +1.500000x_1 + 0.333333x_2 + 0.166667x_9 + 0.666667x_{10} - 0.333333x_4 - 0.666667x_{14} + 3.166667x_7
                8.5
```

 $x_1$  enters and  $x_3$  leaves

```
-6.666667x_3 - 0.111111x_2 - 0.888889x_9 + 0.444444x_{10} + 3.777778x_4 - 0.777778x_{14} - 0.555556x_7
                                26.3333333333
 x_8
                                3.66666666667
                                                                                                                                -1.333333x_3 - 0.888889x_2 - 0.1111111x_9 - 0.444444x_{10} - 1.777778x_4 - 0.222222x_{14} - 1.444444x_{77} - 0.111111x_9 - 0.444444x_{10} - 0.111111x_9 - 0.111111x_9 - 0.111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.111111x_9 - 0.111111x_9 - 0.111111x_9 - 0.111111x_9 - 0.1111111x_9 - 0.11111111x_9 - 0.
 x_1
                                                                                                                               11.3333333333
 x_5
x_{11}
                               5.33333333333
                                                                                                                               -0.666667x_3 + 2.888889x_2 - 0.888889x_9 + 0.444444x_{10} + 6.777778x_4 + 0.222222x_{14} - 0.555556x_7
                               30.6666666667
                                                                                                                               x_{12}
                                                                                                                                45.0
x_{13}
                                                             10.0
                                                                                                                               x_6
x_{15}
                                27.3333333333
                                                                                                                               -1.666667x_3 - 4.111111x_2 + 0.1111111x_9 - 1.555556x_{10} - 10.222222x_4 - 0.777778x_{14} - 1.555556x_{70} - 10.22222x_{70} - 0.777778x_{70} - 10.22222x_{70} - 0.777778x_{70} - 10.22222x_{70} - 0.777778x_{70} - 10.2222x_{70} - 0.777778x_{70} - 10.2222x_{70} - 0.777778x_{70} - 10.222x_{70} - 0.222x_{70} - 0.22x_{70} - 
                                                                                                                                -1.000000x_3 + 4.000000x_2
                                                                                                                                                                                                                                                                                                                                                                +1.000000x_{10} +4.000000x_4
                                                               5.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     +2.000000x_7
x_{16}
                                18.666666667
                                                                                                                                -3.333333x_3 - 2.222222x_2 - 0.777778x_9 - 0.111111x_{10} + 0.5555556x_4 - 0.555556x_{14} - 2.111111x_{77} + 0.555556x_{14} - 0.555556x_{14} - 0.111111x_{17} + 0.5555556x_{17} + 0.555556x_{17} + 0.55556x_{17} + 0.5556x_{17} + 0.5556x_{17} + 0.5566x_{17} + 0.5666x_{17} + 0.5666x_{17
x_{17}
                                                             14.0
                                                                                                                                -2.000000x_3 - 1.000000x_2 + 0.000000x_9 - 0.000000x_{10} - 3.000000x_4 - 1.000000x_{14} + 1.000000x_7
```

 $x_7$  enters and  $x_1$  leaves

```
24.9230769231
  x_8
                            2.53846153846
                                                                                                                     x_7
  x_5
                             7.38461538462
                                                                                                                     -1.230769x_3 - 0.153846x_2 + 0.230769x_9 - 0.076923x_{10} - 2.307692x_4 - 0.538462x_{14} + 1.076923x_{10} - 0.07692x_{10} - 
                            3.92307692308
                                                                                                                     x_{11}
                                                                                                                     13.4615384615
x_{12}
                                                                                                                     -3.230769x_3 + 2.846154x_2 - 0.769231x_9 - 0.076923x_{10} - 1.307692x_4 - 1.538462x_{14} + 2.076923x_{10} - 0.076923x_{10} - 0.07692x_{10} - 0.076
                             37.3846153846
x_{13}
                             6.61538461538
                                                                                                                     -1.769231x_3 + 0.153846x_2 - 0.230769x_9 + 0.076923x_{10} - 0.692308x_4 - 0.461538x_{14} + 0.923077x_1
 x_6
x_{15}
                             23.3846153846
                                                                                                                     -0.230769x_3 -3.153846x_2 +0.230769x_9 -1.076923x_{10} -8.307692x_4 -0.538462x_{14} +1.076923x_{10} -8.30769x_3 -3.153846x_2 +0.230769x_9 -1.076923x_{10} -8.307692x_4 -0.538462x_{14} +1.076923x_{10} -8.30769x_3 -3.153846x_2 +0.230769x_3 -3.153846x_3 +0.23076x_3 +0.230
x_{16}
                             10.0769230769
                                                                                                                     13.3076923077
 x_{17}
                                                                                                                     16.5384615385
```

 $x_{-1}$  enters and Final Dictionary Solution: 16.5384615385 Num Pivots: 6