```
x_8
     4.0
     13.0
          +3.000000x_1
                                 -3.000000x_3 - 3.000000x_4 + 1.000000x_5 + 3.000000x_6 - 2.000000x_7
x_9
     15.0
          -1.000000x_1 + 2.000000x_2 + 2.000000x_3 + 3.000000x_4 + 1.000000x_5
                                                                               +1.000000x_7
x_{10}
x_{11}
     2.0
          -3.000000x_1 - 2.000000x_2 + 2.000000x_3
                                                        -3.000000x_5 -1.000000x_6 -1.000000x_7
     2.0
                      -3.000000x_2 - 2.000000x_3 + 2.000000x_4 + 2.000000x_5 - 3.000000x_6 + 3.000000x_7
x_{12}
     13.0
          +1.000000x_1 +1.000000x_2 +1.000000x_3 +2.000000x_4 +2.000000x_5 +1.000000x_6
x_{13}
     3.0
          +2.000000x_1 -1.000000x_2
                                            +3.000000x_4 +1.000000x_5 -3.000000x_6 +2.000000x_7
x_{14}
x_{15}
     9.0
                      -1.000000x_2 -3.000000x_3 -2.000000x_4 -3.000000x_5 -3.000000x_6 +2.000000x_7
          3.0
x_{16}
x_{1\underline{7}}
     12.0
          -1.000000x_1 +3.000000x_2 +1.000000x_3
                                                                   -1.000000x_6
 z
     0.0
          +1.000000x_1 -1.000000x_2 +2.000000x_3
                                                        -1.000000x_5 + 1.000000x_6 + 1.000000x_7
```

No initialization required –; Proceed to Optimize.

```
x_8
     4.0
           -3.000000x_1 - 2.000000x_2 + 2.000000x_3 - 1.000000x_4 + 3.000000x_5 + 1.000000x_6 + 3.000000x_7
     13.0
           +3.000000x_1
                                    -3.000000x_3 -3.000000x_4 +1.0000000x_5 +3.000000x_6 -2.000000x_7
x_9
     15.0
           -1.000000x_1 + 2.000000x_2 + 2.000000x_3 + 3.000000x_4 + 1.000000x_5
x_{10}
                                                                                       +1.000000x_7
     2.0
           -3.000000x_1 - 2.000000x_2 + 2.000000x_3
                                                              -3.000000x_5 -1.000000x_6 -1.000000x_7
x_{11}
x_{12}
     2.0
                        -3.000000x_2 - 2.000000x_3 + 2.000000x_4 + 2.000000x_5 - 3.000000x_6 + 3.000000x_7
           +1.000000x_1 +1.000000x_2 +1.000000x_3 +2.000000x_4 +2.000000x_5 +1.000000x_6
     13.0
x_{13}
                                                 +3.000000x_4 +1.000000x_5 -3.000000x_6 +2.000000x_7
x_{14}
     3.0
           +2.000000x_1 -1.000000x_2
     9.0
                        -1.000000x_2 -3.000000x_3 -2.000000x_4 -3.000000x_5 -3.000000x_6 +2.000000x_7
x_{15}
     3.0
           x_{16}
     12.0
           -1.000000x_1 + 3.000000x_2 + 1.000000x_3
                                                                          -1.000000x_6
x_{17}
     0.0
           +1.000000x_1 -1.000000x_2 +2.000000x_3
                                                              -1.000000x_5 + 1.000000x_6 + 1.000000x_7
z
```

 x_1 enters and x_{11} leaves

```
2.0
                +1.000000x_{11}
                                            -1.000000x_4 + 6.000000x_5 + 2.000000x_6 + 4.000000x_7
x_8
        15.0
                x_9
    14.33333333333
                x_{10}
   0.666666666667
                -0.333333x_{11} -0.666667x_2 +0.666667x_3
                                                     -1.000000x_5 -0.333333x_6 -0.333333x_7
x_1
                          -3.000000x_2 - 2.000000x_3 + 2.000000x_4 + 2.000000x_5 - 3.000000x_6 + 3.000000x_7
        2.0
x_{12}
    13.666666667
                x_{13}
    4.333333333333
                x_{14}
                          -1.000000x_2 -3.000000x_3 -2.000000x_4 -3.000000x_5 -3.000000x_6 +2.000000x_7
        9.0
x_{15}
    2.333333333333
                +0.333333x_{11} -1.3333333x_2 +0.3333333x_3 -1.000000x_4
                                                               -2.666667x_6 + 2.3333333x_7
x_{16}
    11.3333333333
                +0.333333x_{11} +3.666667x_2 +0.333333x_3
                                                     +1.000000x_5 -0.666667x_6 +0.333333x_7
x_{17}
                -0.333333x_{11} - 1.666667x_2 + 2.666667x_3
                                                     -2.000000x_5 + 0.666667x_6 + 0.666667x_7
   0.666666666667
```

 x_3 enters and x_{12} leaves

```
2.0
                                                                                          +1.000000x_{11}
                                                                                                                                                                                                                                                                 -1.000000x_4 + 6.000000x_5 + 2.000000x_6 + 4.000000x_7
 x_8
                                                                                          14.0
  x_9
                      15.666666667
                                                                                         +0.333333x_{11} + 0.666667x_2 - 0.666667x_{12} + 4.3333333x_4 + 3.333333x_5 - 1.666667x_6 + 3.333333x_7 + 3.33333x_7 + 3.3333x_7 + 3.333x_7 + 3.333x_7 + 3.333x_7 + 3.333x_7 + 3.333x_7 + 3.33x_7 +
 x_{10}
 x_1
                      1.33333333333
                                                                                          -0.333333x_{11} - 1.666667x_2 - 0.3333333x_{12} + 0.666667x_4 - 0.333333x_5 - 1.333333x_6 + 0.666667x_7
                                                                                                                                                   -1.500000x_2 -0.500000x_{12} +1.000000x_4 +1.000000x_5 -1.500000x_6 +1.500000x_7
 x_3
                                              1.0
                      15.3333333333
                                                                                          -0.333333x_{11} - 2.166667x_2 - 0.8333333x_{12} + 3.666667x_4 + 2.666667x_5 - 1.833333x_6 + 2.166667x_7 + 2.666667x_7 + 2.66667x_7 + 2.66667x_7 + 2.66667x_7 + 2.66667x_7 + 2.666667x_7 + 2.666667x_
x_{13}
                      5.66666666667
                                                                                          x_{14}
                                                                                                                                                  x_{15}
                                             6.0
                                                                                         x_{16}
                      2.66666666667
                      11.666666667
                                                                                          x_{17}
                      3.33333333333
```

 x_4 enters and x_{15} leaves

```
+1.000000x_{11} - 0.700000x_2 - 0.300000x_{12} + 0.200000x_{15} + 7.200000x_5 + 1.700000x_6 + 4.500000x_7
                                                                                     0.8
   x_8
                                                                                      9.2
                                                                                                                                                                            -1.000000x_{11} - 3.300000x_2 - 0.700000x_{12} + 0.800000x_{15} + 1.800000x_5 + 2.300000x_6 - 2.500000x_7
   x_9
                                                                                                                                                                          +0.333333x_{11} +3.700000x_2 +0.633333x_{12} \\ -0.866667x_{15} -1.866667x_5 -0.366667x_6 +1.166667x_7 \\ -0.866667x_5 -0.366667x_6 +1.166667x_7 \\ -0.866667x_5 -0.366667x_5 -0.366667x_5 \\ -0.866667x_5 -0.366667x_5 \\ -0.86667x_5 -0.36667x_5 \\ -0.86667x_5 -0.36667x_5 \\ -0.86667x_5 -0.36667x_5 \\ -0.86667x_5 -0.36667x_5 \\ -0.86667x_5 -0.3667x_5 \\ -0.86667x_5 -0.3667x_5 \\ -0.8667x_5 -0.3667x_5 \\ -0.867x_5 -0.3667x_5 \\ -0.867x_5 -0.3667x_5 \\ -0.867x_5 -0.3667x_5 \\ -0.867x_5 -0.367x_5 \\ -0.867x_5
  x_{10}
                                           20.866666667
                                         2.133333333333
                                                                                                                                                                           x_1
                                                                                      2.2
                                                                                                                                                                                                                                                                                     -0.800000x_2 - 0.200000x_{12} - 0.200000x_{15} - 0.200000x_5 - 1.200000x_6 + 1.000000x_7
  x_3
                                           19.7333333333
                                                                                                                                                                           x_{13}
                                            10.866666667
                                                                                                                                                                           -0.666667x_{11} - 1.300000x_2 + 0.6333333x_{12} - 0.866667x_{15} - 4.866667x_5 - 4.366667x_6 + 1.166667x_7 - 4.366667x_7 - 4.36667x_7 - 4.36667x_7 - 4.366667x_7 - 4.366667x_7 - 4.366667x_7 - 4.366
 x_{14}
   x_4
                                                                                       1.2
                                                                                                                                                                                                                                                                                     +0.700000x_2+0.300000x_{12}-0.200000x_{15}-1.200000x_5+0.300000x_6-0.500000x_7
x_{16}
                                           1.8666666667
                                                                                                                                                                          +0.333333x_{11} - 2.300000x_2 - 0.366667x_{12} + 0.1333333x_{15} + 1.133333x_5 - 3.366667x_6 + 3.166667x_7 + 0.1333333x_{15} + 1.133333x_{15} + 0.133333x_{15} + 0.13333x_{15} + 0.133333x_{15} + 0.133333x_{15} + 0.133333x_{15} + 0.13333x_{15} + 0.1333x_{15} + 0.1333x_{15} + 0.1333x_{15} + 0.1333x_{15} + 0.1333x_{15} + 0.133x_{15} + 0.133x_{15} + 0.133x_{15} + 0.133x_{15} + 0.133x_{15} + 0.133x_{15} + 0.13x_{15} + 0.13
                                           12.066666667
                                                                                                                                                                           6.53333333333
                                                                                                                                                                           -0.3333333x_{11} - 3.800000x_2 - 0.5333333x_{12} - 0.5333333x_{15} - 2.5333333x_5 - 2.5333333x_6 + 3.333333x_7 - 2.5333333x_8 - 2.533333x_8 - 2.53333x_8 - 2.533333x_8 - 2.533333x_8 - 2.53333x_8 - 2.5333x_8 - 2.5333x_8 - 2.53333x_8 - 2.5333x_8 - 2.533x_8 - 2.5333x_8 - 2.533x_8 - 2.53x_8 - 2.5
```

 x_7 enters and x_4 leaves

```
11.6
                                                                                                                                +1.000000x_{11} + 5.600000x_2 + 2.400000x_{12} - 1.600000x_{15} - 3.600000x_5 + 4.400000x_6 - 9.000000x_4
 x_8
                                                               3.2
                                                                                                                                 x_9
                               23.666666667
                                                                                                                                x_{10}
                                                                                                                                -0.333333x_{11} - 0.7333333x_2 + 0.066667x_{12} - 0.266667x_{15} - 1.9333333x_5 - 0.9333333x_6 - 0.666667x_{12} - 0.066667x_{13} - 0.066667x_{14} - 0.066667x_{15} - 0.066667x
                               2.93333333333
x_1
                                                                 4.6
                                                                                                                                                                                                                 +0.600000x_2 + 0.400000x_{12} - 0.6000000x_{15} - 2.6000000x_5 - 0.6000000x_6 - 2.0000000x_4
 x_3
x_{13}
                               20.5333333333
                                                                                                                                -0.333333x_{11} + 0.866667x_2 + 0.466667x_{12} - 0.866667x_{15} - 2.533333x_5 - 0.533333x_6 - 0.666667x_4
                               13.6666666667
                                                                                                                                 -0.666667x_{11} + 0.3333333x_2 + 1.3333333x_{12} - 1.333333x_{15} - 7.666667x_5 - 3.666667x_6 - 2.3333333x_4 + 1.3333333x_{15} - 7.666667x_{15} - 3.666667x_{15} - 3.66667x_{15} - 3.666667x_{15} - 3.666667x_{15} - 3.666667x_{15} - 3.666667x_{15} - 3.666667x_{15} - 3.666667x_{15} - 3.666667x_{1
x_{14}
 x_7
                                                                 2.4
                                                                                                                                                                                                                  +1.400000x_2 +0.6000000x_{12} -0.4000000x_{15} -2.4000000x_5 +0.6000000x_6 -2.0000000x_4
                              9.4666666667
                                                                                                                                +0.333333x_{11} + 2.133333x_2 + 1.533333x_{12} - 1.133333x_{15} - 6.466667x_5 - 1.466667x_6 - 6.333333x_4 + 2.1333333x_2 + 1.5333333x_4 - 1.1333333x_{15} - 1.466667x_5 - 1.466667x_6 
x_{16}
x_{17}
                                13.6666666667
                                                                                                                                 +0.333333x_{11}+4.333333x_2+0.333333x_{12}-0.333333x_{15}-0.666667x_5-0.666667x_6-1.333333x_4
                                                                                                                                14.5333333333
```

 x_2 enters and x_9 leaves

```
14.2352941176
                                                                                                                                   +0.176471x_{11} - 0.823529x_9 + 0.588235x_{12} - 0.117647x_{15} + 2.823529x_5 + 5.058824x_6 - 4.882353x_4
 x_8
                               0.470588235294
                                                                                                                                    -0.147059x_{11} - 0.147059x_9 - 0.323529x_{12} + 0.264706x_{15} + 1.147059x_5 + 0.117647x_6 + 0.735294x_4
 x_2
                                                                                                                                   26.1764705882
 x_{10}
                                  2.58823529412
                                                                                                                                   -0.225490x_{11} + 0.107843x_9 + 0.303922x_{12} - 0.460784x_{15} - 2.774510x_5 - 1.019608x_6 - 1.205882x_4
 x_1
                                  4.88235294118
                                                                                                                                  x_3
                                    20.9411764706
                                                                                                                                   -0.460784x_{11} - 0.127451x_9 + 0.186275x_{12} - 0.637255x_{15} - 1.539216x_5 - 0.431373x_6 - 0.029412x_4 - 0.000402x_4 - 0.000000000000000000000000000000
 x_{13}
                                   13.8235294118
                                                                                                                                  -0.715686x_{11} - 0.049020x_9 + 1.225490x_{12} - 1.245098x_{15} - 7.284314x_5 - 3.627451x_6 - 2.088235x_4 + 1.245098x_{15} - 1.24508x_{15} - 1.24508x_{15
x_{14}
 x_7
                                   3.05882352941
                                                                                                                                   +0.019608x_{11} - 0.313725x_9 + 0.843137x_{12} - 0.568627x_{15} - 4.019608x_5 - 1.215686x_6 - 4.764706x_4
                                   10.4705882353
x_{16}
x_{1\underline{7}}
                                    15.7058823529
                                                                                                                                    -0.303922x_{11} - 0.637255x_9 - 1.068627x_{12} + 0.813725x_{15} + 4.303922x_5 - 0.156863x_6 + 1.852941x_4 + 0.813725x_{15} 
                                   14.9411764706
                                                                                                                                   -0.460784x_{11} - 0.127451x_9 + 1.186275x_{12} - 1.637255x_{15} - 9.539216x_5 - 0.431373x_6 - 6.029412x_4
```

 x_{12} enters and x_2 leaves

```
-0.090909x_{11} - 1.090909x_9 - 1.818182x_2 + 0.363636x_{15} + 4.909091x_5 + 5.272727x_6 - 3.545455x_4
                       15.0909090909
  x_8
                      1.45454545455
                                                                                        -0.454545x_{11} - 0.454545x_9 - 3.090909x_2 + 0.818182x_{15} + 3.545455x_5 + 0.363636x_6 + 2.272727x_4
x_{12}
                                                                                        -0.272727x_{11} - 0.606061x_9 + 1.212121x_2 - 0.242424x_{15} + 0.060606x_5 + 0.818182x_6 + 0.696970x_4 + 0.0060606x_5 + 0.00
x_{10}
                     25.6060606061
                        3.0303030303
                                                                                        x_1
                                                                                        5.18181818182
 x_3
                     21.2121212121
                                                                                        x_{13}
                      15.6060606061
                                                                                         -1.272727x_{11} - 0.606061x_9 - 3.787879x_2 - 0.242424x_{15} - 2.939394x_5 - 3.181818x_6 + 0.696970x_4
x_{14}
 x_7
                     3.27272727273
                                                                                        x_{16}
                        11.696969697
                                                                                         -0.363636x_{11} - 0.696970x_9 - 2.606061x_2 + 0.121212x_{15} - 1.030303x_5 - 0.909091x_6 - 2.848485x_4
                      14.1515151515
                                                                                        +0.181818x_{11} \\ -0.151515x_9 \\ +3.303030x_2 \\ -0.060606x_{15} \\ +0.515152x_5 \\ -0.545455x_6 \\ -0.575758x_4 \\ +0.515152x_5 \\ -0.57578x_5 
x_{17}
                      16.666666667
```

 x_6 enters and x_1 leaves

```
32.666666667
           x_8
  2.66666666667
          x_{12}
x_{10}
  28.3333333333
          3.33333333333
x_6
  3.66666666667
          x_3
x_{13}
     20.0
           -0.400000x_{11} - 0.200000x_9 - 0.200000x_2 - 0.400000x_{15} - 0.200000x_5 + 0.400000x_1 + 0.600000x_4
     5.0
                 -0.500000x_9 - 0.500000x_2 + 0.500000x_{15} + 3.000000x_5 + 3.500000x_1 + 2.500000x_4
x_{14}
           x_7
     6.0
  8.66666666667
          x_{16}
  12.3333333333
           +0.400000x_{11} - 0.133333x_9 + 3.866667x_2 + 0.066667x_{15} + 1.533333x_5 + 0.600000x_1 - 0.266667x_4
x_{17}
           -1.000000x_{11} - 0.666667x_9 - 3.666667x_2 - 0.666667x_{15} - 5.333333x_5 - 0.000000x_1 - 3.333333x_4
  16.6666666667
```

 x_{-1} enters and Final Dictionary Solution: 16.6666666667 Num Pivots: 7