```
5.0
          x_8
     5.0
          +3.000000x_1
                                  -3.000000x_3 - 1.000000x_4 - 2.0000000x_5 - 3.0000000x_6 + 3.0000000x_7
x_9
     9.0
          x_{10}
x_{11}
     1.0
          +2.000000x_1 - 2.000000x_2 - 3.000000x_3 + 2.000000x_4 - 2.000000x_5 - 1.000000x_6 + 3.000000x_7
                      -1.000000x_2 - 2.000000x_3 + 2.000000x_4 - 2.000000x_5 - 2.000000x_6 - 3.000000x_7
     6.0
x_{12}
     9.0
          -3.000000x_1 + 1.000000x_2
                                             +2.000000x_4 +1.000000x_5 +3.000000x_6 +2.000000x_7
x_{13}
     4.0
          -2.000000x_1 + 1.000000x_2 - 2.000000x_3
                                                         +1.000000x_5 -3.000000x_6 +3.000000x_7
x_{14}
x_{15}
     9.0
          +2.000000x_1 -2.000000x_2 +2.000000x_3 -3.000000x_4
                                                                     +3.000000x_6 -3.000000x_7
          +3.000000x_1 + 1.000000x_2 + 3.000000x_3 + 2.000000x_4 + 1.000000x_5 + 2.000000x_6 - 1.000000x_7
     11.0
x_{16}
x_{\underline{17}}
     7.0
                                              -2.000000x_4 + 2.000000x_5
     0.0
          -1.000000x_1 - 1.000000x_2 - 1.000000x_3 - 1.000000x_4 + 2.000000x_5 - 1.000000x_6
```

No initialization required –; Proceed to Optimize.

```
x_8
    5.0
         +2.000000x_1 + 3.000000x_2 - 3.000000x_3 + 3.000000x_4 + 3.000000x_5 - 2.000000x_6 + 3.000000x_7
    5.0
         +3.000000x_1
                             -3.000000x_3 -1.000000x_4 -2.000000x_5 -3.000000x_6 +3.000000x_7
x_9
    9.0
         x_{10}
    1.0
         x_{11}
x_{12}
    6.0
                   -1.000000x_2 - 2.000000x_3 + 2.000000x_4 - 2.000000x_5 - 2.000000x_6 - 3.000000x_7
    9.0
                                       +2.000000x_4 +1.000000x_5 +3.000000x_6 +2.000000x_7
         -3.000000x_1 + 1.000000x_2
x_{13}
x_{14}
    4.0
         -2.000000x_1 + 1.000000x_2 - 2.000000x_3
                                                 +1.000000x_5 -3.000000x_6 +3.000000x_7
    9.0
         +2.000000x_1 -2.000000x_2 +2.000000x_3 -3.000000x_4
                                                           +3.000000x_6 -3.000000x_7
x_{15}
         x_{16}
    11.0
    7.0
                                       -2.000000x_4 + 2.000000x_5
         -3.000000x_1
                                                                      +2.000000x_7
x_{17}
         -1.000000x_1 - 1.000000x_2 - 1.000000x_3 - 1.000000x_4 + 2.000000x_5 - 1.000000x_6
    0.0
z
```

 x_5 enters and x_{11} leaves

```
6.5
          +5.000000x_1
                                 -7.500000x_3 + 6.000000x_4 - 1.500000x_{11} - 3.500000x_6 + 7.500000x_7
x_8
     4.0
          +1.000000x_1 +2.000000x_2
                                             -3.000000x_4 + 1.000000x_{11} - 2.000000x_6
x_9
    10.5
          +5.000000x_1 -1.000000x_2 -2.500000x_3
                                                        -1.500000x_{11} -2.500000x_6 +2.500000x_7 \\
x_{10}
          x_5
     0.5
     5.0
          -2.000000x_1 + 1.000000x_2 + 1.000000x_3
                                                        +1.000000x_{11} -1.000000x_6 -6.000000x_7
x_{12}
     9.5
          -2.000000x_1
                                 -1.500000x_3 + 3.000000x_4 - 0.500000x_{11} + 2.500000x_6 + 3.500000x_7
x_{13}
          -1.000000x_1
     4.5
                                 -3.500000x_3 + 1.000000x_4 - 0.500000x_{11} - 3.500000x_6 + 4.500000x_7
x_{14}
     9.0
          +2.000000x_1 -2.000000x_2 +2.000000x_3 -3.000000x_4
                                                                    +3.000000x_6 -3.000000x_7
x_{15}
                                 +1.500000x_3 +3.000000x_4 -0.500000x_{11} +1.500000x_6 +0.500000x_7
    11.5
          +4.000000x_1
x_{16}
          -1.000000x_1 -2.000000x_2 -3.000000x_3
                                                        -1.000000x_{11} -1.000000x_6 +5.000000x_7
     8.0
x_{17}
          1.0
```

 x_1 enters and x_{12} leaves

```
x_8
   6.5
      x_9
  23.0
      -2.500000x_{12} + 1.500000x_2
                                 +1.000000x_{11} -5.000000x_6 -12.500000x_7
x_{10}
x_5
   3.0
      -0.500000x_{12} - 0.500000x_2 - 1.000000x_3 + 1.000000x_4
                                        -1.000000x_6 -1.500000x_7
   2.5
      -0.500000x_{12} + 0.500000x_2 + 0.500000x_3
                                 +0.500000x_{11} - 0.500000x_6 - 3.000000x_7
x_1
      4.5
x_{13}
   2.0
      x_{14}
x_{15}
  14.0
      21.5
x_{16}
      +0.500000x_{12}-2.500000x_2-3.500000x_3\\
x_{17}
   5.5
                                 -1.500000x_{11} - 0.500000x_6 + 8.000000x_7
   3.5
      -0.500000x_{12} - 2.500000x_2 - 3.500000x_3 + 1.000000x_4 - 0.500000x_{11} - 2.500000x_6
```

 x_4 enters and x_9 leaves

```
32.0
x_8
   2.16666666667
               x_4
x_{10}
       23.0
               -2.500000x_{12} + 1.500000x_2
                                                     +1.000000x_{11} -5.000000x_6 -12.500000x_7
   5.16666666667
               x_5
                                                     +0.500000x_{11} -0.500000x_6 -3.000000x_7
       2.5
               -0.500000x_{12} + 0.500000x_2 + 0.500000x_3
x_1
       11.0
               +0.500000x_{12}+1.500000x_2-2.000000x_3-1.000000x_9
                                                               +1.000000x_6 +6.500000x_7
x_{13}
x_{14}
   4.16666666667
               +0.333333x_{12} + 0.333333x_2 - 3.833333x_3 - 0.333333x_9 - 0.500000x_{11} - 3.833333x_6 + 6.500000x_{71}
x_{15}
       7.5
               -0.500000x_{12} - 3.500000x_2 + 2.500000x_3 + 1.000000x_9 - 0.500000x_{11} + 4.500000x_6 - 6.000000x_7
x_{16}
       28.0
               5.5
               +0.500000x_{12} -2.500000x_2 -3.500000x_3
                                                    -1.500000x_{11} -0.500000x_6 +8.000000x_7
x_{17}
               -0.666667x_{12} - 1.666667x_2 - 3.333333x_3 - 0.333333x_9
                                                               -3.333333x_6 -1.000000x_7
   5.66666666667
```

 x_{-1} enters and Final Dictionary Solution: 5.66666666667 Num Pivots: 3