```
1.0
      +3.000000x_1 +3.000000x_2
                          +1.000000x_4 -3.000000x_5 -3.000000x_6 +1.000000x_7
x_8
   9.0
      +3.000000x_1 - 2.000000x_2 + 3.000000x_3 - 1.000000x_4 - 2.000000x_5 - 2.000000x_6
x_9
   2.0
                                              +3.000000x_7
      +1.000000x_1 -3.000000x_2 -3.000000x_3
                                 -2.000000x_5
x_{10}
x_{11}
   7.0
      +2.000000x_1 -1.000000x_2 -2.0000000x_3 -1.000000x_4 +2.0000000x_5
                                              -3.000000x_7
  14.0
      -2.000000x_1 + 2.000000x_2 - 2.000000x_3
                                 -3.000000x_5 + 1.000000x_6 - 1.000000x_7
x_{12}
  14.0
      x_{13}
   7.0
      x_{14}
x_{15}
  14.0
      5.0
x_{16}
x_{1\underline{7}}
      11.0
      0.0
```

No initialization required –; Proceed to Optimize.

```
x_8
   1.0
      +3.000000x_1 +3.000000x_2
                         +1.000000x_4 -3.000000x_5 -3.000000x_6 +1.000000x_7
   9.0
      +3.000000x_1 - 2.000000x_2 + 3.000000x_3 - 1.000000x_4 - 2.000000x_5 - 2.000000x_6
x_9
   2.0
      +1.000000x_1 -3.000000x_2 -3.000000x_3
                                -2.000000x_5
                                             +3.000000x_7
x_{10}
   7.0
      +2.000000x_1 -1.000000x_2 -2.000000x_3 -1.000000x_4 +2.000000x_5
x_{11}
                                             -3.000000x_7
x_{12}
  14.0
      -2.000000x_1 + 2.0000000x_2 - 2.0000000x_3
                                -3.000000x_5 + 1.000000x_6 - 1.000000x_7
      14.0
x_{13}
   7.0
      x_{14}
  14.0
      x_{15}
   5.0
x_{16}
      11.0
      x_{17}
      0.0
z
```

 x_1 enters and x_{17} leaves

```
12.0
                                                                                                                                    x_8
                                                              20.0
                                                                                                                                    -1.000000x_{17}
                                                                                                                                                                                                                                                                                                    +5.000000x_3 - 4.000000x_4 - 4.000000x_5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            +2.000000x_7
  x_9
                                 5.6666666667
                                                                                                                                   -0.333333x_{17} - 2.3333333x_2 - 2.3333333x_3 - 1.000000x_4 - 2.666667x_5 + 0.666667x_6 + 3.666667x_7 + 0.666667x_7 + 0.66667x_7 + 0.666667x_7 + 0.66667x_7 + 0.66667x_7 + 0.66667x_7 + 0.66667x_7 + 0.66667x_7 + 
 x_{10}
                                 14.3333333333
                                                                                                                                    x_{11}
                                6.66666666667
                                                                                                                                   x_{12}
                                                                 3.0
                                                                                                                                    +1.000000x_{17} -3.000000x_2
                                                                                                                                                                                                                                                                                                                                                                                  +5.000000x_4 +3.000000x_5 -4.000000x_6 -4.000000x_7
x_{13}
                                                                                                                                                                                                                                                                                                     +5.000000x_3 -6.000000x_4 -1.000000x_5
                                                               18.0
                                                                                                                                    -1.000000x_{17}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            +3.000000x_7
  x_{14}
                                 10.333333333
                                                                                                                                  x_{15}
                                 12.3333333333
                                                                                                                                   -0.666667x_{17} - 1.666667x_2 - 1.666667x_3 - 5.000000x_4 + 0.666667x_5 + 2.333333x_6 - 0.666667x_7 - 0.666667x_
 x_{16}
                                 3.6666666667
                                                                                                                                    -0.3333333x_{17} + 0.666667x_2 + 0.666667x_3 - 1.000000x_4 - 0.666667x_5 + 0.666667x_6 + 0.666667x_7 + 0.66667x_7 + 0.666667x_7 + 0.666667x_
    x_1
                                                                                                                                  7.33333333333
```

 x_3 enters and x_{12} leaves

```
16.0
x_8
   30.0
              +1.000000x_2 - 1.500000x_{12} - 1.000000x_4 - 6.500000x_5 - 0.500000x_6 - 1.500000x_7
x_9
   1.0
      x_{10}
x_{11}
   13.0
      -0.800000x_{17} + 0.200000x_2 + 0.200000x_{12} - 3.400000x_4 + 1.000000x_5 + 1.400000x_6 - 1.200000x_7
      2.0
x_3
   3.0
      +1.000000x_{17} -3.000000x_2
                            +5.000000x_4 +3.000000x_5 -4.000000x_6 -4.000000x_7
x_{13}
   28.0
             +1.000000x_2 - 1.500000x_{12} - 3.000000x_4 - 3.500000x_5 - 0.500000x_6 - 0.500000x_7
x_{14}
x_{15}
   13.0
      -1.000000x_{17} - 2.000000x_2 + 0.500000x_{12} - 6.000000x_4 + 1.500000x_5 + 2.500000x_6 + 0.500000x_7
   9.0
x_{16}
      5.0
x_1
      z
   8.0
```

 x_5 enters and x_{10} leaves

```
+2.600000x_{17} + 16.600000x_2 - 3.400000x_{12} + 8.800000x_4 + 4.000000x_{10} - 4.800000x_6 - 19.600000x_7
        12.0
x_8
    25.6666666667
                 x_9
x_5
    0.666666666667
                 13.6666666667
                 x_{11}
    1.66666666667
                 +0.466667x_{17} +1.1333333x_2 -0.5333333x_{12} +1.400000x_4 +0.333333x_{10} -0.400000x_6 -2.466667x_7
x_3
                 -0.600000x_{17} -8.600000x_2 +1.400000x_{12} +0.200000x_4 -2.000000x_{10} -2.200000x_6 +6.600000x_7
        5.0
x_{13}
    25.6666666667
                 +1.866667x_{17} +7.5333333x_2 -3.1333333x_{12} +2.600000x_4 +2.3333333x_{10} -2.600000x_6 -12.866667x_{7}
x_{14}
x_{15}
        15.0
                 -1.000000x_{17} - 9.000000x_2 + 1.000000x_{12} - 5.000000x_4 - 2.000000x_{10} - 1.000000x_6 + 11.000000x_7
x_{16}
        10.0
                 -1.800000x_{17} -4.800000x_2 +1.200000x_{12} -8.400000x_4 -1.000000x_{10} +3.400000x_6 +5.800000x_7
    4.333333333333
                 x_1
    8.33333333333
                 -0.866667x_{17} -1.5333333x_2 +0.1333333x_{12} -4.600000x_4 -0.3333333x_{10} -0.400000x_6 +3.866667x_7
z
```

 x_7 enters and x_8 leaves

```
0.612244897959
                                                                                                                                                                                                                                                  +0.132653x_{17} + 0.846939x_2 - 0.173469x_{12} + 0.448980x_4 + 0.204082x_{10} - 0.244898x_6 - 0.051020x_8
     x_7
                                                                                                                                                                                                                                                  +0.221088x_{17} - 7.588435x_2 - 0.289116x_{12} - 1.585034x_4 - 0.659864x_{10} + 1.591837x_6 + 1.248299x_8 + 1.04867x_{10} + 1.048298x_{10} + 1.048299x_{10} + 1.04829x_{10} + 1.04828x_{10} + 1.0482x_{10} + 1.0482x
     x_9
                                                                10.6870748299
                                                                2.82993197279
                                                                                                                                                                                                                                                     -0.064626x_{17} + 1.125850x_2 - 0.146259x_{12} - 0.013605x_4 + 0.054422x_{10} - 0.265306x_6 - 0.180272x_8 + 0.0066660x_6 + 0.006660x_6 + 0.00660x_6 + 0.0060x_6 + 0.000x_6 +
     x_5
                                                                                                                                                                                                                                                     -1.023810x_{17} + 0.309524x_2 + 0.261905x_{12} - 3.952381x_4 - 0.190476x_{10} + 1.428571x_6 - 0.119048x_8
                                                                15.0952380952
   x_{11}
                                                          0.156462585034
                                                                                                                                                                                                                                                  +0.139456x_{17} - 0.955782x_2 - 0.105442x_{12} + 0.292517x_4 - 0.170068x_{10} + 0.204082x_6 + 0.125850x_8 + 0.12580x_8 + 0.12560x_8 + 
     x_3
                                                                                                                                                                                                                                                   x_{13}
                                                                9.04081632653
                                                                17.7891156463
                                                                                                                                                                                                                                                   x_{14}
x_{15}
                                                                 21.7346938776
                                                                                                                                                                                                                                                   +0.459184x_{17} + 0.316327x_2 - 0.908163x_{12} - 0.061224x_4 + 0.244898x_{10} - 3.693878x_6 - 0.561224x_8 + 0.061224x_8 + 0.06124x_8 + 0.061
                                                                   13.5510204082
                                                                                                                                                                                                                                                   -1.030612x_{17} + 0.112245x_2 + 0.193878x_{12} - 5.795918x_4 + 0.183673x_{10} + 1.979592x_6 - 0.295918x_8 + 0.183673x_{10} + 0.1836774x_{10} + 0.1836
 x_{16}
                                                                       2.2925170068
                                                                                                                                                                                                                                                   -0.108844x_{17} - 0.156463x_2 - 0.088435x_{12} - 0.496599x_4 - 0.013605x_{10} + 0.816327x_6 + 0.170068x_8
     x_1
                                                                                                                                                                                                                                                   -0.353741x_{17} + 1.741497x_2 - 0.537415x_{12} - 2.863946x_4 + 0.455782x_{10} - 1.346939x_6 - 0.197279x_8 + 0.197277x_8 + 0.19727x_8 + 0.10727x_8 + 0.10727x_8 + 0.10727x_8 + 0.10727x_8 +
                                                                 10.7006802721
```

 x_2 enters and x_3 leaves

```
0.750889679715
                                                                                                                                +0.256228x_{17} - 0.886121x_3 - 0.266904x_{12} + 0.708185x_4 + 0.053381x_{10} - 0.064057x_6 + 0.060498x_8 + 0.060408x_8 + 0.06
 x_7
                                 9.44483985765
                                                                                                                                 -0.886121x_{17} + 7.939502x_3 + 0.548043x_{12} - 3.907473x_4 + 0.690391x_{10} - 0.028470x_6 + 0.249110x_8
 x_9
                                 3.01423487544
                                                                                                                                +0.099644x_{17} - 1.177936x_3 - 0.270463x_{12} + 0.330961x_4 - 0.145907x_{10} - 0.024911x_6 - 0.032028x_8
  x_5
x_{11}
                                 15.1459074733
                                                                                                                                 -0.978648x_{17} - 0.323843x_3 + 0.227758x_{12} - 3.857651x_4 - 0.245552x_{10} + 1.494662x_6 - 0.078292x_8
                                                                                                                               +0.145907x_{17} -1.046263x_3 -0.110320x_{12} +0.306050x_4 -0.177936x_{10} +0.213523x_6 +0.131673x_8 +0.131676x_8 +0.1316
                               0.163701067616
 x_2
                                 8.54804270463
                                                                                                                                x_{13}
                                                                                                                                x_{14}
                                  17.2384341637
x_{15}
                                  21.7864768683
                                                                                                                               13.5693950178
                                                                                                                                -1.014235x_{17} - 0.117438x_3 + 0.181495x_{12} - 5.761566x_4 + 0.163701x_{10} + 2.003559x_6 - 0.281139x_8
x_{16}
                                   2.26690391459
                                                                                                                                 x_1
                                                                                                                                -0.099644x_{17} - 1.822064x_3 - 0.729537x_{12} - 2.330961x_4 + 0.145907x_{10} - 0.975089x_6 + 0.032028x_8 + 0.002028x_8 + 0.00
                                 10.9857651246
```

 x_8 enters and x_{13} leaves

```
1.45631067961
                                                                                                                                                              +0.242718x_{17} - 0.626214x_3 - 0.218447x_{12} + 0.893204x_4 + 0.043689x_{10} - 0.432039x_6 - 0.082524x_{13}
   x_7
                                        12.3495145631
                                                                                                                                                                -0.941748x_{17} + 9.009709x_3 + 0.747573x_{12} - 3.145631x_4 + 0.650485x_{10} - 1.543689x_6 - 0.339806x_{13}
   x_9
   x_5
                                       2.64077669903
                                                                                                                                                              +0.106796x_{17} - 1.315534x_3 - 0.296117x_{12} + 0.233010x_4 - 0.140777x_{10} + 0.169903x_6 + 0.043689x_{13}
                                        14.2330097087
                                                                                                                                                                x_{11}
                                                                                                                                                              +0.116505x_{17} - 0.480583x_3 - 0.004854x_{12} + 0.708738x_4 - 0.199029x_{10} - 0.587379x_6 - 0.179612x_{13} + 0.004854x_{12} + 0.004854x_{13} + 0.004854x_{14} + 0.004854x_{15} + 0.00485x_{15} + 0.00485x
                                        1.69902912621
  x_2
                                                                                                                                                              11.6601941748
  x_8
x_{14}
                                        19.7281553398
                                                                                                                                                                -0.378641x_{17} + 4.436893x_3 - 0.359223x_{12} - 3.553398x_4 + 0.271845x_{10} - 1.466019x_6 - 0.291262x_{13}
 x_{15}
                                        15.7281553398
                                                                                                                                                              +0.621359x_{17} - 2.563107x_3 - 1.359223x_{12} - 1.553398x_4 + 0.271845x_{10} - 0.466019x_6 + 0.708738x_{13} + 0.271845x_{10} + 0.27184x_{10} + 
x_{16}
                                        10.2912621359
                                                                                                                                                              -0.165049x_{17} + 0.805825x_3 + 0.048544x_{12} - 0.087379x_4 - 0.009709x_{10} - 0.126214x_6 - 0.203883x_{13} + 0.048544x_{12} - 0.087379x_4 - 0.009709x_{10} - 0.0126214x_6 - 0.003883x_{13} + 0.00386x_{13} + 0.00386x
                                        4.00970873786
                                           11.359223301
                                                                                                                                                                -0.106796x_{17} - 1.684466x_3 - 0.703883x_{12} - 2.233010x_4 + 0.140777x_{10} - 1.169903x_6 - 0.043689x_{13} - 0.043680x_{13} - 0.04360x_{13} - 0.0
        z
```

 x_{10} enters and x_2 leaves

```
1.82926829268
                                                                                                                                                               +0.268293x_{17} - 0.731707x_3 - 0.219512x_{12} + 1.048780x_4 - 0.219512x_2 - 0.560976x_6 - 0.121951x_{13}
  x_7
                                                                                                                                                               x_9
                                        17.9024390244
  x_5
                                        1.43902439024
                                                                                                                                                               -1.097561x_{17} - 0.097561x_3 + 0.170732x_{12} - 4.926829x_4 + 1.170732x_2 + 2.658537x_6 + 0.317073x_{13}
                                            12.243902439
 x_{11}
                                                                                                                                                               +0.585366x_{17} - 2.414634x_3 - 0.024390x_{12} + 3.560976x_4 - 5.024390x_2 - 2.951220x_6 - 0.902439x_{13} + 2.560976x_4 - 0.902439x_2 - 2.951220x_6 - 0.902439x_{13} + 2.560976x_4 - 0.902439x_2 - 2.951220x_6 - 0.902439x_{13} + 2.560976x_4 - 0.902439x_2 - 0.902438x_2 - 0.902438x_2 - 0.90248x_2 - 0.9024x_2 - 0.
                                       8.53658536585
 x_{10}
  x_8
                                        10.2926829268
                                                                                                                                                               -0.317073x_{17} + 4.682927x_3 + 0.804878x_{12} + 2.487805x_4 + 0.804878x_2 - 5.609756x_6 - 1.219512x_{13}
                                       22.0487804878
                                                                                                                                                               -0.219512x_{17} + 3.780488x_3 - 0.365854x_{12} - 2.585366x_4 - 1.365854x_2 - 2.268293x_6 - 0.536585x_{13} - 0.53658x_{13} - 0.53668x_{13} - 0.5
 x_{14}
x_{15}
                                        18.0487804878
                                                                                                                                                               +0.780488x_{17} - 3.219512x_3 - 1.365854x_{12} - 0.585366x_4 - 1.365854x_2 - 1.268293x_6 + 0.463415x_{13} 
                                        12.0731707317
                                                                                                                                                                -0.829268x_{17} - 1.829268x_3 - 0.048780x_{12} - 5.878049x_4 - 1.048780x_2 + 3.097561x_6 + 0.195122x_{13} + 0.048780x_2 + 0.048780x_3 + 0.048780x_4 + 0.048780x_2 + 0.048780x_3 + 0.048780x_4 + 0.048780x_3 + 0.048780x_4 + 0.048780x_3 + 0.048780x_4 + 0.048780x_4 + 0.048780x_3 + 0.048780x_4 + 0.048780x_3 + 0.048780x_4 + 0.04
 x_{16}
                                        3.92682926829
                                                                                                                                                               -0.170732x_{17} + 0.829268x_3 + 0.048780x_{12} - 0.121951x_4 + 0.048780x_2 - 0.097561x_6 - 0.195122x_{13}
   x_1
                                      \overline{12.5609756098}
```

 x_{-1} enters and Final Dictionary Solution: 12.5609756098 Num Pivots: 7