```
x_{15}
  12.0
    +1.0000000x_1
                     -2.000000x_4
                               +3.000000x_6 -3.000000x_7
    +1.000000x_1 -2.000000x_2 -2.000000x_3 +3.000000x_4
                               8.0
x_{16}
  8.0
    x_{17}
x_{18}
  13.0
    +1.000000x_1 -3.000000x_2 +1.000000x_3 +3.000000x_4
                               -3.000000x_6
                                          +1.000000x_8 + 2.00
               -2.000000x_3 + 2.000000x_4 + 3.000000x_5 + 2.000000x_6 - 1.000000x_7 - 3.000000x_8
  15.0
    +1.000000x_1
  10.0
    -1.000000x_1 - 2.000000x_2 - 3.000000x_3 + 1.000000x_4 + 3.000000x_5 + 3.000000x_6 + 1.000000x_7 + 2.000000x_8
x_{20}
    6.0
x_{21}
  15.0
    +1.000000x_1 -1.000000x_2
                     +2.000000x_4 +1.000000x_5 -2.000000x_6 +3.000000x_7 -2.000000x_8
x_{22}
  2.0
    x_{23}
  3.0
    x_{24}
  12.0
    -3.000000x_1 + 1.000000x_2
                     x_{25}
    11.0
x_{26}
                     9.0
          +1.000000x_2
x_{27}
    10.0
x_{28}
  5.0
    x_{29}
    0.0
```

No initialization required –; Proceed to Optimize.

```
12.0
                   -2.000000x_4
                             +3.000000x_6 -3.000000x_7
                                           +2.00
    +1.000000x_1
x_{15}
x_{16}
  8.0
    +1.000000x_1 -2.000000x_2 -2.000000x_3 +3.000000x_4
                             -1.000000x_6 -2.000000x_7 +3.000000x_8 -3.00
  8.0
    x_{17}
                             -3.000000x_6
x_{18}
  13.0
    +1.000000x_1 -3.000000x_2 +1.000000x_3 +3.000000x_4
                                      +1.000000x_8 +2.00
              -2.000000x_3 + 2.000000x_4 + 3.000000x_5 + 2.000000x_6 - 1.000000x_7 - 3.000000x_8
  15.0
    +1.000000x_1
x_{19}
    10.0
x_{20}
  6.0
    x_{21}
  15.0
    +1.000000x_1 -1.000000x_2
                   +2.000000x_4 +1.000000x_5 -2.000000x_6 +3.000000x_7 -2.000000x_8
x_{22}
    2.0
  3.0
    x_{24}
                   12.0
    -3.000000x_1 + 1.000000x_2
x_{25}
  11.0
    x_{26}
  9.0
         +1.000000x_2
                   x_{27}
  10.0
    x_{28}
  5.0
    x_{29}
    0.0
```

 $x_1$  enters and  $x_{25}$  leaves

```
16.0
                       -0.333333x_{25} + 0.3333333x_2
x_{15}
  12.0
     x_{16}
  12.0
     x_{17}
x_{18}
  17.0
     -0.333333x_{25} + 0.333333x_2 - 2.000000x_3 + 1.666667x_4 + 3.333333x_5 + 1.000000x_6
  19.0
                                               -2.3333333x_8 + 1.0
x_{19}
  6.0
     +0.333333x_{25} -2.333333x_2 -3.000000x_3 +1.333333x_4 +2.666667x_5 +4.000000x_6
                                               +1.3333333x_8 -1.0
x_{20}
  10.0
     x_{21}
  19.0
                       x_{22}
     -0.333333x_{25} -0.666667x_2
x_{23}
  10.0
     -0.666667x_{25} - 0.3333333x_2 + 3.000000x_3 + 2.333333x_4 - 2.333333x_5
                                         +1.000000x_7 +4.333333x_8 +5.0
x_{24}
     -0.666667x_{25} + 1.666667x_2 + 2.000000x_3 + 0.333333x_4 - 0.333333x_5
                                         +1.000000x_7 +3.333333x_8 -1.0
  11.0
                       4.0
     -0.3333333x_{25} + 0.3333333x_2
x_1
     7.0
x_{26}
  9.0
                       x_{27}
           +1.000000x_2
  2.0
     x_{28}
     9.0
x_{29}
  8.0
     -0.666667x_{25} + 1.666667x_2 - 2.000000x_3 - 2.666667x_4 - 0.333333x_5
                                               +2.3333333x_8
```

 $x_2$  enters and  $x_{28}$  leaves

```
16.25
x_{15}
x_{16}
 10.75
  10.0
x_{17}
  x_{18}
 15.0
  -1.000000x_{25} + 1.000000x_{28} + 2.000000x_3
               19.25
  4.25
  x_{20}
 11.0
      x_{21}
x_{22}
 18.5
  x_{23}
 9.75
  12.25
  x_{24}
 4.25
  -0.250000x_{25} -0.125000x_{28} -0.125000x_3
               x_1
 7.5
  +0.500000x_{25} -0.250000x_{28} -3.250000x_3
               +2.750000x_5 +5.000000x_6 -4.750000x_7 -0.250000x_8 -
x_{26}
 9.75
  x_{27}
  0.75
x_2
               x_{29}
 7.0
  -1.000000x_{25} + 1.000000x_{28}
 9.25
  z
```

 $x_6$  enters and  $x_{18}$  leaves

```
20.9375
     x_{15}
  2.3125
      x_{16}
  6.25
      x_{17}
  1.875
      -0.125000x_{25} + 0.125000x_{28} + 0.250000x_3
                           -0.000000x_5 -0.125000x_{18} +0.500000x_7 +0.500000x_8
x_6
  22.0625
     x_{19}
  5.1875
      x_{20}
  7.25
      x_{21}
  11.0
           x_{22}
      x_{23}
  8.8125
  16.9375
      x_{24}
      -0.187500x_{25} -0.187500x_{28} -0.250000x_3
                           +0.375000x_5 +0.062500x_{18} +0.375000x_7 +0.125000x_8
  3.3125
x_1
                           +2.750000x_5 -0.625000x_{18} -2.250000x_7 +2.250000x_8
  16.875
      -0.125000x_{25} + 0.375000x_{28} - 2.000000x_3
x_{26}
  8.8125
      x_{27}
  3.5625
     +0.062500x_{25} -0.187500x_{28}
                      +1.000000x_4 +0.125000x_5 -0.187500x_{18} -0.375000x_7 -0.125000x_8
x_2
  3.25
      -0.750000x_{25} + 0.750000x_{28} - 0.500000x_3
                           +2.000000x_5 +0.250000x_{18}
                                           +1.000000x_8
x_{29}
  13.9375
     z
```

 $x_8$  enters and  $x_{21}$  leaves

```
23.555555556
x_{15}
                                                                                                                                                     6.9444444444
x_{16}
                                                                                                                                                     -0.472222x_{25} - 0.083333x_{28} + 0.722222x_3 - 2.111111x_4 + 2.666667x_5 + 0.527778x_{18} + 2.666667x_7 - 1.111x_4 + 2.666667x_5 + 0.527778x_{18} + 0.52777
x_{17}
                                     14.305555556
  x_6
                                     2.6805555556
                                                                                                                                                     -0.097222x_{25} + 0.041667x_{28} + 0.472222x_3 - 0.1111111x_4 + 0.166667x_5 - 0.097222x_{18} + 0.666667x_7 - 0.111111x_4 + 0.066667x_5 - 0.097222x_{18} + 0.066667x_7 - 0.0111111x_4 + 0.066667x_5 - 0.097222x_{18} + 0.066667x_5 - 0.00722x_{18} + 0.00722x_{18} + 0.0072x_{18} +
                                     19.041666667
                                                                                                                                                      x_{19}
                                     11.027777778
                                                                                                                                                     x_{20}
                                                                                                                                                   +0.055556x_{25} - 0.166667x_{28} + 0.444444x_3 - 0.222222x_4 + 0.333333x_5 + 0.055556x_{18} + 0.333333x_7 - 0.22x_{18} + 0.055556x_{18} + 0.05566x_{18} + 0.05566x_{18} + 0.05566x_{18} + 0.05566x_{18} + 0.0566x_{18} + 0.0566x_{18
                                     1.61111111111
  x_8
x_{22}
                                                                                                                                                     -0.152778x_{25} + 0.208333x_{28} - 1.972222x_3 + 1.611111x_4 + 0.333333x_5 + 0.347222x_{18} + 1.833333x_7 + 0.613x_7 + 
                                    6.5694444444
                                                                                                                                                     15.8611111111
 x_{23}
                                     21.9722222222
                                                                                                                                                     x_{24}
                                    3.51388888889
                                                                                                                                                     -0.180556x_{25} - 0.208333x_{28} - 0.194444x_3 - 0.027778x_4 + 0.416667x_5 + 0.069444x_{18} + 0.416667x_7 - 0.027778x_4 + 0.06667x_5 + 0.066444x_{18} + 0.06667x_7 + 0.0667x_7 + 0.067x_7 + 0.067x_7 + 0.067x_7 + 0.067x_7 + 0.067x_7 + 0.067x_7 + 0.
  x_1
                                                                        20.5
                                                                                                                                                      x_{26}
                                     3.7777777778
                                                                                                                                                     x_{27}
                                                                                                                                                   +0.055556x_{25} - 0.166667x_{28} - 0.055556x_3 + 1.027778x_4 + 0.083333x_5 - 0.194444x_{18} - 0.416667x_7 + 0.02778x_8 + 0.083333x_8 - 0.08333x_8 - 0.083333x_8 - 0.08333x_8 - 0.0833x_8 - 0.0835x_8 -
                                    3.36111111111
   x_2
                                     4.86111111111
                                                                                                                                                     x_{29}
                                     17.3611111111
                                                                                                                                                   z
```

 $x_5$  enters and  $x_{23}$  leaves

```
39.4166666667
x_{15}
                                                                                                    -0.553030x_{25} - 1.204545x_{28} + 4.621212x_3 + 1.575758x_4 - 1.181818x_{23} + 1.083333x_{18} + 2.636364x_7 - 1.08333x_{18} + 2.636364x_7 - 1.08333x_{18} + 2.636364x_7 - 1.08333x_{18} + 2.636364x_7 - 1.08333x_{18} + 2.636364x_7 - 1.0836x_{18} + 2.6366x_{18} + 2.636x_{18} + 2.6366x_{18} + 2.636x_{18} + 2.6366x_{18} + 2.6366x_{18} + 2.6366x_{18} + 2.6366x_{
                         25.6893939394
x_{16}
                                                                                                     60.446969697
x_{17}
 x_6
                         5.56439393939
                                                                                                    -0.178030x_{25} - 0.079545x_{28} + 1.371212x_3 + 0.075758x_4 - 0.181818x_{23} - 0.041667x_{18} + 1.136364x_7 - 0.041667x_{18} + 0.04167x_{18} + 0.
                                                                                                     66.625
 x_{19}
                         73.0303030303
                                                                                                    x_{20}
                                                                                                    7.37878787879
  x_8
x_{22}
                                                                                                    12.3371212121
                                                                                                    17.303030303
  x_5
                         37.8333333333
                                                                                                     x_{24}
                                                                                                    10.7234848485
 x_1
                                                                                                    -1.696970x_{25} - 2.545455x_{28} + 17.878788x_3 + 3.424242x_4 - 3.818182x_{23} + 0.666667x_{18} + 8.363636x_7 - 4.666667x_{18} + 10.666667x_{18} + 10.66667x_{18} + 10.66667x_{18} + 10.666667x_{18} + 10.66667x_{18} + 10.66667x_{18} + 10.66667x_{18} + 10.66667x_{18} + 10.66667x_{18
                        81.0606060606
 x_{26}
                                                                                                     x_{27}
                         39.8257575758
                         4.80303030303
                                                                                                    x_2
                                                                                                    -1.825758x_{25} - 1.113636x_{28} + 12.530303x_3 + 2.393939x_4 - 2.545455x_{23} + 1.083333x_{18} + 6.909091x_7 - 2.3666x_{18} + 1.083333x_{18} + 1.08333x_{18} + 1.0833x_{18} + 1.083x_{18} + 1.083x_
                         45.2348484848
 x_{29}
                        27.4545454545
```

 $x_3$  enters and  $x_{22}$  leaves

```
-12.043478x_{25} - 1.956522x_{28} - 35.391304x_{22} + 68.913043x_4 - 13.869565x_{23} + 16.304348x_{18} + 100.136x_{18} + 100
                                                                      476.043478261
x_{15}
                                                                                                                                                                                                                                                                                          -8.891304x_{25} \ -2.108696x_{28} \ -26.521739x_{22} \ +54.217391x_4 \ -10.826087x_{23} +13.239130x_{18} \ +76.173x_{18} + 10.173x_{18} + 1
                                                                      352.891304348
x_{16}
                                                                                                                                                                                                                                                                                      -29.021739x_{25} - 4.978261x_{28} - 86.695652x_{22} + 172.956522x_4 - 34.434783x_{23} + 41.152174x_{18} + 250.5652x_{22} + 172.956522x_4 - 34.434783x_{23} + 41.152174x_{23} + 250.5652x_{24} + 172.956522x_4 - 34.434783x_{23} + 41.152174x_{23} + 250.5652x_{24} + 172.95652x_{24} + 172.95652x_{24} + 172.95652x_{24} + 172.95652x_{24} + 172.95652x_{24} + 172.95652x_{24} + 172.956672x_{24} + 172.95672x_{24} + 172
x_{17}
                                                                      1130.02173913
    x_6
                                                                      102.652173913
                                                                                                                                                                                                                                                                                          -2.652174x_{25} -0.347826x_{28} -7.869565x_{22} +15.695652x_4 -3.043478x_{23} +3.565217x_{18} +22.956
                                                                            933.97826087
                                                                                                                                                                                                                                                                                      -23.978261x_{25} - 4.021739x_{28} - 70.304348x_{22} + 145.043478x_4 - 28.565217x_{23} + 32.847826x_{18} + 202.43478x_{22} + 144.043478x_{23} + 144.043478x_{24} + 144.043478x_{25} + 144.04478x_{25} + 144.0478x_{25} + 144.0478x_{
    x_{19}
                                                                      1414.02173913
                                                                                                                                                                                                                                                                                    -36.021739x_{25} -5.978261x_{28} -108.695652x_{22} +217.956522x_4 -43.434783x_{23} +51.152174x_{18} +315.5652x_{22} +217.956522x_4 -43.434783x_{23} +51.152174x_{23} +31.152174x_{23} +31.
    x_{20}
                                                                                                                                                                                                                                                                                          -4.152174x_{25} -0.847826x_{28} -12.869565x_{22} +25.695652x_4 -5.043478x_{23} +6.065217x_{18} +36.956
                                                                      166.152173913
      x_8
    x_3
                                                                                                                                                                                                                                                                                          -1.804348x_{25} -0.195652x_{28} -5.739130x_{22} +11.391304x_4 -2.086957x_{23} +2.630435x_{18} +15.913
                                                                      70.8043478261
                                                                                                                                                                                                                                                                                    -10.217391x_{25} - 1.782609x_{28} - 30.956522x_{22} + 62.565217x_4 - 12.347826x_{23} + 14.521739x_{18} + 88.652x_{22} + 62.565217x_4 - 12.347826x_{23} + 14.521739x_{18} + 88.652x_{23} + 14.521739x_{28} + 88.652x_{29} + 12.347826x_{29} + 14.521739x_{29} + 12.347826x_{29} + 14.521739x_{29} + 14.5217376x_{29} + 14.5217376x_{29} + 14.5217376x_{29} + 14.521776x_{29} + 14.521776x_{29} + 14.521776x_{29} + 14.5
                                                                      399.217391304
      x_5
                                                                      627.869565217
                                                                                                                                                                                                                                                                                      -15.869565x_{25} - 3.130435x_{28} - 47.826087x_{22} + 97.260870x_4 - 18.391304x_{23} + 22.086957x_{18} + 136.6087x_{22} + 12.086957x_{23} + 12.0867x_{23} + 12.086
  x_{24}
                                                                                                                                                                                                                                                                                          -4.086957x_{25} -0.913043x_{28} -11.782609x_{22} +23.826087x_4 -4.739130x_{23} +5.608696x_{18} +34.26087x_{18} +34.26087x_{1
                                                                      156.086956522
    x_1
                                                                   1346.95652174
                                                                                                                                                                                                                                                                                      -33.956522x_{25} - 6.043478x_{28} - 102.608696x_{22} + 207.086957x_4 - 41.130435x_{23} + 47.695652x_{18} + 292.869x_{22} + 207.086957x_4 - 41.130435x_{23} + 47.695652x_{18} + 207.08695x_{22} + 207.08695x_{23} + 207.0866x_{23} + 207.086x_{23} + 207.0866x_{23} + 207.086x_{23} + 207.0866x_{23} + 207.0866x_{23} + 207.0866x_{23} + 207.0866x_{23} + 207.086x_{23} + 207.
    x_{26}
                                                                                                                                                                                                                                                                                      -17.739130x_{25} - 3.260870x_{28} - 53.652174x_{22} + 113.521739x_4 - 21.782609x_{23} + 25.173913x_{18} + 154.21739x_{18} + 154.21737x_{18} + 154.21737x_{18} + 154.21737x_{18} + 154.21737x_{18} + 154.21737x_{
    x_{27}
                                                                      701.739130435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         +5.608696x_4 -0.913043x_{23} +0.869565x_{18} +6.0869
                                                                      32.6956521739
                                                                                                                                                                                                                                                                                          -0.695652x_{25} -0.304348x_{28} -2.260870x_{22}
      x_2
                                                                   932.434782609
                                                                                                                                                                                                                                                                                    -24.434783x_{25} -3.565217x_{28} -71.913043x_{22} +145.130435x_4 -28.695652x_{23} +34.043478x_{18} +206.30436x_{18} +206.3046x_{18} +206.3046x_{
    x_{29}
                                                                                                                               175.5
                                                                                                                                                                                                                                                                                          z
```

 $x_4$  enters and Unbounded Dictionary!