Initial Dictionary

0.1 Initialization Phase: Dual Problem Solving

New Objective in primal was changed to :

$$\max \sum_{j=1}^{6} -x_j$$

Primal variable x_j corresponds to dual variable y_j for $j=1,\ldots,12$ Dual Dictionary (with objective changed is):

```
+6.00y_7 +9.00y_8 -10.00y_9 -3.00y_{10} -3.00y_{11} -1.00y_{12}
y_1
     1.0
            -7.00y_7 -6.00y_8 +4.00y_9 +6.00y_{10} +10.00y_{11} -6.00y_{12}
y_2
           -10.00y_7 -1.00y_8 -8.00y_9 -5.00y_{10} +3.00y_{11}
     1.0
y_3
     1.0
            +1.00y_7 +2.00y_8 +2.00y_9 +3.00y_{10} +10.00y_{11} -9.00y_{12}
y_4
            +1.00y_7 \ +4.00y_8 \ -2.00y_9 \ +4.00y_{10} \ +7.00y_{11} \ +6.00y_{12}
     1.0
y_5
            +8.00y_7 \ +3.00y_8 \ -7.00y_9 \ -10.00y_{10} \ -1.00y_{11} \ +4.00y_{12}
     1.0
y_6
           -28.00y_7 - 34.00y_8 + 27.00y_9 + 2.00y_{10} - 46.00y_{11} + 7.00y_{12}
```

Initialization succeeded in finding final dual dictionary with 3 pivots

```
0.0869565217391
                           +0.58y_7 +0.86y_8 -0.10y_1 -0.33y_{10} -0.40y_{11} +0.01y_4
      0.565217391304
                           -6.13y_7 -5.04y_8 -0.26y_1 +3.13y_{10} +2.26y_{11} +0.70y_4
y_2
      0.304347826087
                           -14.61y_7 - 7.87y_8 + 0.78y_1 - 2.39y_{10} + 6.22y_{11} - 0.09y_4
y_3
      0.130434782609
                           +0.24y_7 +0.41y_8 -0.02y_1 +0.26y_{10} +1.02y_{11} -0.11y_4
y_{12}
       1.60869565217
                           +1.28y_7 +4.76y_8 +0.07y_1 +6.22y_{10} +13.93y_{11} -0.67y_4
y_5
                           +4.92y_7 -1.36y_8 +0.60y_1 -6.67y_{10} +5.90y_{11} -0.51y_4
      0.913043478261
y_6
      3.26086956522
                           -10.77y_7 - 7.92y_8 - 2.79y_1 - 4.98y_{10} - 49.71y_{11} - 0.47y_4
```

Primal Dictionary is:

```
10.7717391304
                         -0.58x_9 + 6.13x_2 + 14.61x_3 - 0.24x_{12} - 1.28x_5 - 4.92x_6
x_7
                         -0.86x_9 + 5.04x_2 + 7.87x_3 -0.41x_{12} -4.76x_5 +1.36x_6
      7.92391304348
x_8
x_1
      2.79347826087
                         +0.10x_9 +0.26x_2 -0.78x_3 +0.02x_{12} -0.07x_5 -0.60x_6
      4.97826086957
                         +0.33x_9 -3.13x_2 +2.39x_3 -0.26x_{12} -6.22x_5 +6.67x_6
x_{10}
      49.7065217391
                         +0.40x_9 -2.26x_2 -6.22x_3 -1.02x_{12} -13.93x_5 -5.90x_6
x_{11}
      0.467391304348
                          -0.01x_9 - 0.70x_2 + 0.09x_3 + 0.11x_{12} + 0.67x_5 + 0.51x_6
x_4
      -3.26086956522
                          -0.09x_9 - 0.57x_2 - 0.30x_3 - 0.13x_{12} - 1.61x_5 - 0.91x_6
```

Primal Dictionary with original objective is:

```
10.7717391304
                        -0.58x_9 + 6.13x_2 + 14.61x_3 - 0.24x_{12} - 1.28x_5 - 4.92x_6
      7.92391304348
                        -0.86x_9 + 5.04x_2 + 7.87x_3 -0.41x_{12} -4.76x_5 +1.36x_6
x_8
      2.79347826087
                        +0.10x_9 +0.26x_2 -0.78x_3 +0.02x_{12} -0.07x_5 -0.60x_6
x_1
      4.97826086957
                        +0.33x_9 -3.13x_2 +2.39x_3 -0.26x_{12} -6.22x_5 +6.67x_6
x_{10}
                        +0.40x_9-2.26x_2 \ -6.22x_3 \ -1.02x_{12}-13.93x_5-5.90x_6
x_{11}
      49.7065217391
      0.467391304348
                        -0.01x_9 -0.70x_2 +0.09x_3 +0.11x_{12} +0.67x_5 +0.51x_6
x_4
      10.7173913043
                        +0.24x_9 -6.70x_2 -5.91x_3 +0.61x_{12} +3.17x_5 -1.24x_6
z
```

 x_5 enters and x_{10} leaves

```
9.74475524476
                          -0.64x_9 + 6.78x_2 + 14.12x_3 - 0.19x_{12} + 0.21x_{10} - 6.30x_6
x_7
      4.11188811189
                          -1.11x_9 + 7.44x_2 + 6.04x_3 -0.21x_{12} + 0.77x_{10} -3.75x_6
x_8
      2.74125874126
                          +0.09x_9 +0.29x_2 -0.81x_3 +0.02x_{12} +0.01x_{10} -0.67x_6
x_1
      0.800699300699
                          +0.05x_9 -0.50x_2 +0.38x_3 -0.04x_{12} -0.16x_{10} +1.07x_6
x_5
       38.548951049
                          -0.33x_9 + 4.76x_2 - 11.58x_3 - 0.44x_{12} + 2.24x_{10} - 20.86x_6
x_{11}
      1.00699300699
                          +0.02x_9 -1.03x_2 +0.35x_3 +0.08x_{12} -0.11x_{10} +1.23x_6
x_4
      13.2587412587
                          +0.41x_9 - 8.29x_2 - 4.69x_3 + 0.48x_{12} - 0.51x_{10} + 2.17x_6
```

 x_6 enters and x_8 leaves

```
2.83923578751
                        +1.22x_9 -5.72x_2 +3.97x_3 +0.17x_{12} -1.08x_{10} +1.68x_8
x_7
x_6
      1.09599254427
                        -0.30x_9 +1.98x_2 +1.61x_3 -0.06x_{12} +0.20x_{10} -0.27x_8
x_1
      2.00931966449
                        +0.29x_9 -1.03x_2 -1.88x_3 +0.06x_{12} -0.13x_{10} +0.18x_8
                        -0.26x_9 \;\; +1.63x_2 \;\; +2.11x_3 \;\; -0.10x_{12} +0.06x_{10} -0.29x_8
      1.97716682199
x_5
                        +5.83x_9 -36.62x_2 -45.15x_3 +0.75x_{12} -2.02x_{10} +5.56x_8
x_{11}
      15.6863932898
x_4
      2.35973904939
                        -0.34x_9 +1.41x_2 +2.33x_3 +0.01x_{12} +0.14x_{10} -0.33x_8
      15.6346691519
                        -0.23x_9 -3.99x_2 -1.20x_3 +0.35x_{12} -0.07x_{10} -0.58x_8
z
```

 x_{12} enters and x_5 leaves

```
6.15837104072
                            +0.77x_9 -2.99x_2 +7.52x_3 -1.68x_5 -0.98x_{10} +1.20x_8
x_7
      0.00452488687783
                            -0.15x_9 +1.09x_2 +0.44x_3 +0.55x_5 +0.17x_{10} -0.11x_8
x_6
        3.20814479638
                            +0.13x_9 -0.05x_2 -0.60x_3 -0.61x_5 -0.09x_{10} +0.00x_8
x_1
        19.1990950226
                            -2.57x_9 + 15.78x_2 + 20.51x_3 - 9.71x_5 + 0.57x_{10} - 2.78x_8
x_{12}
x_{11}
        30.0633484163
                            +3.91x_9 - 24.80x_2 - 29.79x_3 - 7.27x_5 - 1.59x_{10} + 3.48x_8
        2.55656108597
                            -0.37x_9 +1.57x_2 +2.54x_3 -0.10x_5 +0.15x_{10} -0.36x_8
x_4
        \overline{22.39}81900452
                            -1.14x_9 +1.57x_2 +6.02x_3 -3.42x_5 +0.13x_{10} -1.56x_8
```

 x_2 enters and x_{11} leaves

```
2.53211678832
                        +0.30x_9 +0.12x_{11} +11.11x_3 -0.80x_5 -0.79x_{10} +0.78x_8
x_7
                        +0.02x_9 -0.04x_{11} -0.86x_3 +0.23x_5 +0.10x_{10} +0.04x_8
      1.32116788321
x_6
      3.15328467153
                        +0.12x_9 +0.00x_{11} -0.55x_3 -0.59x_5 -0.09x_{10} -0.00x_8
x_1
                        -0.08x_9 - 0.64x_{11} + 1.55x_3 - 14.34x_5 - 0.45x_{10} - 0.56x_8
      38.3343065693
x_{12}
      1.21240875912
                        +0.16x_9 -0.04x_{11} -1.20x_3 -0.29x_5 -0.06x_{10} +0.14x_8
x_2
      4.46569343066
                        -0.12x_9 - 0.06x_{11} + 0.65x_3 - 0.56x_5 + 0.05x_{10} - 0.14x_8
x_4
                        -0.89x_9 -0.06x_{11} +4.14x_3 -3.88x_5 +0.03x_{10} -1.34x_8
      24.296350365
```

 x_3 enters and x_2 leaves

```
13.7472660996
                          +1.76x_9 -0.25x_{11} -9.25x_2 -3.51x_5 -1.38x_{10} +2.08x_8
x_7
x_6
      0.452004860267
                          -0.09x_9 - 0.01x_{11} + 0.72x_2 + 0.44x_5 + 0.15x_{10} - 0.06x_8
      2.60085054678
                          +0.05x_9 +0.02x_{11} +0.46x_2 -0.46x_5 -0.06x_{10} -0.07x_8
x_1
                          +0.12x_9 -0.69x_{11} -1.29x_2 -14.72x_5 -0.53x_{10} -0.38x_8
       39.897326853
x_{12}
      1.00911300122
                          +0.13x_9 -0.03x_{11} -0.83x_2 -0.24x_5 -0.05x_{10} +0.12x_8
x_3
       5.1227217497
                          -0.03x_9 - 0.09x_{11} - 0.54x_2 - 0.72x_5 + 0.01x_{10} - 0.06x_8
x_4
      28.4756986634
                          -0.35x_9 -0.20x_{11} -3.45x_2 -4.89x_5 -0.19x_{10} -0.85x_8
z
```

Final Dictionary Final dictionary after first LP relaxation solve:

```
13.7472660996
                         +1.76x_9 -0.25x_{11} -9.25x_2 -3.51x_5 -1.38x_{10} +2.08x_8
x_7
      0.452004860267
                         -0.09x_9 -0.01x_{11} +0.72x_2 +0.44x_5 +0.15x_{10} -0.06x_8
x_6
      2.60085054678
                         +0.05x_9 +0.02x_{11} +0.46x_2 -0.46x_5 -0.06x_{10} -0.07x_8
x_1
                         +0.12x_9 -0.69x_{11} -1.29x_2 -14.72x_5 -0.53x_{10} -0.38x_8
x_{12}
       39.897326853
      1.00911300122
                         +0.13x_9 -0.03x_{11} -0.83x_2 -0.24x_5 -0.05x_{10} +0.12x_8
x_3
                         -0.03x_9 - 0.09x_{11} - 0.54x_2 - 0.72x_5 + 0.01x_{10} - 0.06x_8
       5.1227217497
x_4
      28.4756986634
                         -0.35x_9 -0.20x_{11} -3.45x_2 -4.89x_5 -0.19x_{10} -0.85x_8
```

After cutting plane is added

```
13.7472660996
                              +1.76x_9 -0.25x_{11} -9.25x_2 -3.51x_5 -1.38x_{10} +2.08x_8
x_7
x_6
        0.452004860267
                              -0.09x_9 -0.01x_{11} +0.72x_2 +0.44x_5 +0.15x_{10} -0.06x_8
         2.60085054678
                              +0.05x_9 +0.02x_{11} +0.46x_2 -0.46x_5 -0.06x_{10} -0.07x_8
x_1
         39.897326853
                              +0.12x_9 -0.69x_{11} -1.29x_2 -14.72x_5 -0.53x_{10} -0.38x_8
x_{12}
         1.00911300122
                              +0.13x_9 -0.03x_{11} -0.83x_2 -0.24x_5 -0.05x_{10} +0.12x_8
x_3
                              -0.03x_9 - 0.09x_{11} - 0.54x_2 - 0.72x_5 + 0.01x_{10} - 0.06x_8
         5.1227217497
x_4
x_{13}
       -0.747266099635
                              +0.24x_9 +0.25x_{11} +0.25x_2 +0.51x_5 +0.38x_{10} +0.92x_8
       -0.452004860267
                              +0.09x_9 +0.01x_{11} +0.28x_2 +0.56x_5 +0.85x_{10} +0.06x_8
x_{14}
        -0.60085054678
                              +0.95x_9 +0.98x_{11} +0.54x_2 +0.46x_5 +0.06x_{10} +0.07x_8
x_{15}
       -0.897326852977
                              +0.88x_9 +0.69x_{11} +0.29x_2 +0.72x_5 +0.53x_{10} +0.38x_8
x_{16}
       -0.00911300121507
                              +0.87x_9 +0.03x_{11} +0.83x_2 +0.24x_5 +0.05x_{10} +0.88x_8
x_{17}
                              +0.03x_9 +0.09x_{11} +0.54x_2 +0.72x_5 +0.99x_{10} +0.06x_8
       -0.122721749696
x_{18}
         28.4756986634
                              -0.35x_9 -0.20x_{11} -3.45x_2 -4.89x_5 -0.19x_{10} -0.85x_8
```

Forming the dual dictionary:

The Final Dual Dictionary is: Final primal dictionary obtained:

```
11.3941176471
                           +1.99x_9 +0.70x_{15} -8.70x_2 -1.93x_5 -3.71x_{13} +5.45x_8
x_7
x_6
      0.682352941176
                           -0.07x_9 -0.12x_{15} +0.68x_2 +0.29x_5 +0.40x_{13} -0.42x_8
       2.51764705882
                           +0.03x_9 +0.06x_{15} +0.46x_2 -0.41x_5 -0.16x_{13} +0.08x_8
x_1
       38.6882352941
                           +0.78x_9 -0.36x_{15} -0.76x_2 -13.87x_5 -1.33x_{13} +0.87x_8
x_{12}
      0.905882352941
                           +0.16x_9 +0.00x_{15} -0.80x_2 -0.17x_5 -0.14x_{13} +0.25x_8
x_3
              5.1
                           +0.05x_9 -0.10x_{15} -0.50x_2 -0.70x_5 +0.05x_{13} -0.10x_8
x_4
       1.60588235294
                           +0.01x_9 -0.70x_{15} -0.30x_2 -1.07x_5 +2.71x_{13} -2.45x_8
x_{10}
      0.923529411765
                           +0.09x_9 -0.58x_{15} +0.02x_2 -0.36x_5 +2.31x_{13} -2.03x_8
x_{14}
                           -0.97x_9 + 1.06x_{15} - 0.54x_2 - 0.41x_5 - 0.16x_{13} + 0.08x_8
      0.517647058824
x_{11}
x_{16}
      0.311764705882
                           +0.22x_9 +0.36x_{15} -0.24x_2 -0.13x_5 +1.33x_{13} -0.87x_8
      0.0941176470588
                           +0.84x_9 -0.00x_{15} +0.80x_2 +0.17x_5 +0.14x_{13} +0.75x_8
x_{17}
       1.50588235294
                           -0.04x_9 - 0.60x_{15} + 0.20x_2 - 0.37x_5 + 2.66x_{13} - 2.35x_8
x_{18}
                           -0.16x_9 -0.08x_{15} -3.28x_2 -4.60x_5 -0.48x_{13} -0.40x_8
       28.0647058824
```

After cutting plane is added

```
11.3941176471
                             +1.99x_9 +0.70x_{15} -8.70x_2 -1.93x_5 -3.71x_{13} +5.45x_8
x_7
x_6
       0.682352941176
                             -0.07x_9 - 0.12x_{15} + 0.68x_2 + 0.29x_5 + 0.40x_{13} - 0.42x_8
        2.51764705882
                             +0.03x_9 +0.06x_{15} +0.46x_2 -0.41x_5 -0.16x_{13} +0.08x_8
x_1
        38.6882352941
                             +0.78x_9 -0.36x_{15} -0.76x_2 -13.87x_5 -1.33x_{13} +0.87x_8
x_{12}
                             +0.16x_9 +0.00x_{15} -0.80x_2 -0.17x_5 -0.14x_{13} +0.25x_8
       0.905882352941
x_3
                             +0.05x_9 -0.10x_{15} -0.50x_2 -0.70x_5 +0.05x_{13} -0.10x_8
              5.1
x_4
        1.60588235294
                             +0.01x_9 -0.70x_{15} -0.30x_2 -1.07x_5 +2.71x_{13} -2.45x_8
x_{10}
       0.923529411765
                             +0.09x_9 -0.58x_{15} +0.02x_2 -0.36x_5 +2.31x_{13} -2.03x_8
x_{14}
       0.517647058824
                             -0.97x_9 + 1.06x_{15} - 0.54x_2 - 0.41x_5 - 0.16x_{13} + 0.08x_8
x_{11}
       0.311764705882
                             +0.22x_9 +0.36x_{15} -0.24x_2 -0.13x_5 +1.33x_{13} -0.87x_8
x_{16}
       0.0941176470588
                             +0.84x_9 -0.00x_{15} +0.80x_2 +0.17x_5 +0.14x_{13} +0.75x_8
x_{17}
                             -0.04x_9 -0.60x_{15} +0.20x_2 -0.37x_5 +2.66x_{13} -2.35x_8
        1.50588235294
x_{18}
x_{19}
       -0.394117647059
                             +0.01x_9 +0.30x_{15} +0.70x_2 +0.93x_5 +0.71x_{13} +0.55x_8
       -0.682352941176
                             +0.07x_9 +0.12x_{15} +0.32x_2 +0.71x_5 +0.60x_{13} +0.42x_8
x_{20}
       -0.517647058824
                             +0.97x_9 +0.94x_{15} +0.54x_2 +0.41x_5 +0.16x_{13} +0.92x_8
x_{21}
       -0.688235294118
                             +0.22x_9 +0.36x_{15} +0.76x_2 +0.87x_5 +0.33x_{13} +0.13x_8
x_{22}
       -0.905882352941
                             +0.84x_9 +1.00x_{15} +0.80x_2 +0.17x_5 +0.14x_{13} +0.75x_8
x_{23}
x_{24}
              -0.1
                             +0.95x_9 +0.10x_{15} +0.50x_2 +0.70x_5 +0.95x_{13} +0.10x_8
                             +0.99x_9+0.70x_{15}+0.30x_2\ +0.07x_5\ +0.29x_{13}+0.45x_8
       -0.605882352941
x_{25}
       -0.923529411765
                             +0.91x_9 +0.58x_{15} +0.98x_2 +0.36x_5 +0.69x_{13} +0.03x_8
x_{26}
       -0.517647058824
                             +0.97x_9 +0.94x_{15} +0.54x_2 +0.41x_5 +0.16x_{13} +0.92x_8
x_{27}
       -0.311764705882
                             +0.78x_9 +0.64x_{15} +0.24x_2 +0.13x_5 +0.67x_{13} +0.87x_8
x_{28}
      -0.0941176470588
                             +0.16x_9 +0.00x_{15} +0.20x_2 +0.83x_5 +0.86x_{13} +0.25x_8
x_{29}
       -0.505882352941
                             +0.04x_9 +0.60x_{15} +0.80x_2 +0.37x_5 +0.34x_{13} +0.35x_8
x_{30}
        28.0647058824
                             -0.16x_9 - 0.08x_{15} - 3.28x_2 - 4.60x_5 - 0.48x_{13} - 0.40x_8
```

Forming the dual dictionary:

The Final Dual Dictionary is:

```
12.081300813
                          +2.17x_9 -0.87x_{20} -8.40x_2 -1.82x_5 -1.38x_{14} +3.01x_8
x_7
x_6
      0.459349593496
                          -0.09x_9 - 0.07x_{20} + 0.70x_2 + 0.41x_5 + 0.19x_{14} - 0.00x_8
       2.65650406504
                          +0.03x_9 +0.08x_{20} +0.44x_2 -0.50x_5 -0.09x_{14} -0.14x_8
x_1
       36.843495935
                          +0.97x_9 -2.58x_{20} +0.06x_2 -12.00x_5 +0.09x_{14} +2.14x_8
x_{12}
       0.84756097561
                          +0.17x_9 -0.12x_{20} -0.76x_2 -0.10x_5 -0.03x_{14} +0.24x_8
x_3
       4.78048780488
                          +0.07x_9 -0.33x_{20} -0.40x_2 -0.43x_5 +0.11x_{14} +0.25x_8
x_4
      0.459349593496
                          -0.09x_9 + 0.93x_{20} - 0.30x_2 - 0.59x_5 + 0.19x_{14} - 0.00x_8
x_{13}
      0.459349593496
                          -0.09x_9 - 0.07x_{20} - 0.30x_2 - 0.59x_5 + 1.19x_{14} - 0.00x_8
x_{10}
       4.08130081301
                          -1.16x_9 + 3.80x_{20} - 1.73x_2 - 3.48x_5 - 1.05x_{14} - 3.66x_8
x_{11}
x_{16}
       2.15650406504
                          +0.03x_9 + 2.58x_{20} - 1.06x_2 - 2.00x_5 - 0.09x_{14} - 2.14x_8
       0.15243902439
                          +0.83x_9 +0.12x_{20} +0.76x_2 +0.10x_5 +0.03x_{14} +0.76x_8
x_{17}
      0.678861788618
                          -0.15x_9 + 0.26x_{20} + 0.10x_2 -0.16x_5 +1.09x_{14} -0.25x_8
x_{18}
                          -0.19x_9 + 3.72x_{20} - 1.17x_2 - 2.99x_5 - 0.96x_{14} - 3.52x_8
       3.42479674797
x_{15}
      0.965447154472
                          -0.11x_9 + 1.79x_{20} + 0.13x_2 - 0.39x_5 - 0.15x_{14} - 0.52x_8
x_{19}
       2.76829268293
                          +0.77x_9 +3.64x_{20} -0.61x_2 -2.49x_5 -0.87x_{14} -2.38x_8
x_{21}
                          +0.12x_9+1.65x_{20}+0.24x_2 -0.40x_5 -0.28x_{14}-1.14x_8
x_{22}
      0.697154471545
x_{23}
       2.57723577236
                          +0.63x_9 +3.84x_{20} -0.41x_2 -2.89x_5 -0.93x_{14} -2.76x_8
      0.678861788618
                          +0.85x_9+1.26x_{20}+0.10x_2-0.16x_5+0.09x_{14}-0.25x_8
x_{24}
       1.91869918699
                          +0.83x_9 + 2.87x_{20} - 0.60x_2 - 2.18x_5 - 0.62x_{14} - 2.01x_8
x_{25}
                          +0.74x_9 +2.80x_{20} +0.09x_2 -1.78x_5 -0.42x_{14} -2.01x_8
       1.37804878049
x_{26}
                          +0.77x_9 +3.64x_{20} -0.61x_2 \ -2.49x_5 \ -0.87x_{14} -2.38x_8
x_{27}
       2.76829268293
       2.18699186992
                          +0.60x_9 +3.01x_{20} -0.71x_2 -2.18x_5 -0.49x_{14} -1.39x_8
x_{28}
      0.306910569106
                          +0.09x_9 +0.81x_{20} -0.06x_2 +0.31x_5 +0.16x_{14} +0.24x_8
x_{29}
       1.69918699187
                          -0.11x_9 + 2.54x_{20} - 0.00x_2 - 1.62x_5 - 0.51x_{14} - 1.75x_8
x_{30}
       27.5630081301
                          -0.10x_9 -0.76x_{20} -3.04x_2 -4.07x_5 -0.01x_{14} -0.11x_8
 z
```

```
12.081300813
                             +2.17x_9 -0.87x_{20} -8.40x_2 -1.82x_5 -1.38x_{14} +3.01x_8
       0.459349593496
                             -0.09x_9 -0.07x_{20} +0.70x_2 +0.41x_5 +0.19x_{14} -0.00x_8
x_6
                             +0.03x_9 +0.08x_{20} +0.44x_2 -0.50x_5 -0.09x_{14} -0.14x_8
        2.65650406504
x_1
                             +0.97x_9 -2.58x_{20} +0.06x_2 -12.00x_5 +0.09x_{14} +2.14x_8
         36.843495935
x_{12}
        0.84756097561
                             +0.17x_9 -0.12x_{20} -0.76x_2 -0.10x_5 -0.03x_{14} +0.24x_8
x_3
                             +0.07x_9 -0.33x_{20} -0.40x_2 -0.43x_5 +0.11x_{14} +0.25x_8
        4.78048780488
x_4
       0.459349593496
                             -0.09x_9 + 0.93x_{20} - 0.30x_2 - 0.59x_5 + 0.19x_{14} - 0.00x_8
x_{13}
       0.459349593496
                             -0.09x_9 - 0.07x_{20} - 0.30x_2 - 0.59x_5 + 1.19x_{14} - 0.00x_8
x_{10}
        4.08130081301
                             -1.16x_9 + 3.80x_{20} - 1.73x_2 - 3.48x_5 - 1.05x_{14} - 3.66x_8
x_{11}
        2.15650406504
                             +0.03x_9 + 2.58x_{20} - 1.06x_2 - 2.00x_5 - 0.09x_{14} - 2.14x_8
x_{16}
                             +0.83x_9 +0.12x_{20} +0.76x_2 +0.10x_5 +0.03x_{14} +0.76x_8
        0.15243902439
x_{17}
                             -0.15x_9 + 0.26x_{20} + 0.10x_2 -0.16x_5 +1.09x_{14} -0.25x_8
x_{18}
       0.678861788618
x_{15}
        3.42479674797
                             -0.19x_9 + 3.72x_{20} - 1.17x_2 - 2.99x_5 - 0.96x_{14} - 3.52x_8
       0.965447154472
                             -0.11x_9 + 1.79x_{20} + 0.13x_2 -0.39x_5 -0.15x_{14} -0.52x_8
x_{19}
        2.76829268293
                             +0.77x_9 +3.64x_{20} -0.61x_2 -2.49x_5 -0.87x_{14} -2.38x_8
x_{21}
                             +0.12x_9+1.65x_{20}+0.24x_2 -0.40x_5 -0.28x_{14}-1.14x_8
       0.697154471545
x_{22}
        2.57723577236
                             +0.63x_9 +3.84x_{20} -0.41x_2 -2.89x_5 -0.93x_{14} -2.76x_8
x_{23}
       0.678861788618
                             +0.85x_9 +1.26x_{20} +0.10x_2 -0.16x_5 +0.09x_{14} -0.25x_8
x_{24}
                             +0.83x_9 +2.87x_{20} -0.60x_2 -2.18x_5 -0.62x_{14} -2.01x_8
        1.91869918699
x_{25}
        1.37804878049
                             +0.74x_9 +2.80x_{20} +0.09x_2 -1.78x_5 -0.42x_{14} -2.01x_8
x_{26}
        2.76829268293
                             +0.77x_9 +3.64x_{20} -0.61x_2 -2.49x_5 -0.87x_{14} -2.38x_8
x_{27}
                             +0.60x_9 +3.01x_{20} -0.71x_2 -2.18x_5 -0.49x_{14} -1.39x_8
        2.18699186992
x_{28}
       0.306910569106
                             +0.09x_9 +0.81x_{20} -0.06x_2 +0.31x_5 +0.16x_{14} +0.24x_8
x_{29}
x_{30}
        1.69918699187
                             -0.11x_9 + 2.54x_{20} - 0.00x_2 - 1.62x_5 - 0.51x_{14} - 1.75x_8
        0.0813008130081
                             +0.83x_9 +0.87x_{20} +0.40x_2 +0.82x_5 +0.38x_{14} +0.99x_8
x_{31}
       -0.459349593496
                             +0.09x_9 +0.07x_{20} +0.30x_2 +0.59x_5 +0.81x_{14} +0.00x_8
x_{32}
                             +0.97x_9 +0.92x_{20} +0.56x_2 +0.50x_5 +0.09x_{14} +0.14x_8
       -0.656504065041
x_{33}
       -0.843495934959
                             +0.03x_9 +0.58x_{20} +0.94x_2 +0.00x_5 +0.91x_{14} +0.86x_8
x_{34}
       -0.84756097561
                             +0.83x_9 +0.12x_{20} +0.76x_2 +0.10x_5 +0.03x_{14} +0.76x_8
x_{35}
       -0.780487804878
                             +0.93x_9 +0.33x_{20} +0.40x_2 +0.43x_5 +0.89x_{14} +0.75x_8
x_{36}
                             +0.09x_9 +0.07x_{20} +0.30x_2 +0.59x_5 +0.81x_{14} +0.00x_8
       -0.459349593496
x_{37}
       -0.459349593496
                             +0.09x_9 +0.07x_{20} +0.30x_2 +0.59x_5 +0.81x_{14} +0.00x_8
x_{38}
      -0.0813008130082
                             +0.16x_9 +0.20x_{20} +0.73x_2 +0.48x_5 +0.05x_{14} +0.66x_8
x_{39}
                             +0.97x_9 +0.42x_{20} +0.06x_2 +1.00x_5 +0.09x_{14} +0.14x_8
       -0.156504065041
x_{40}
       -0.15243902439
                             +0.17x_9 +0.88x_{20} +0.24x_2 +0.90x_5 +0.97x_{14} +0.24x_8
x_{41}
       -0.678861788618
                             +0.15x_9 +0.74x_{20} +0.90x_2 +0.16x_5 +0.91x_{14} +0.25x_8
x_{42}
       -0.424796747968
                             +0.19x_9 +0.28x_{20} +0.17x_2 +0.99x_5 +0.96x_{14} +0.52x_8
x_{43}
       -0.965447154472
                             +0.11x_9 +0.21x_{20} +0.87x_2 +0.39x_5 +0.15x_{14} +0.52x_8
x_{44}
       -0.768292682927
                             +0.23x_9 +0.36x_{20} +0.61x_2 +0.49x_5 +0.87x_{14} +0.38x_8
x_{45}
x_{46}
       -0.697154471545
                             +0.88x_9 +0.35x_{20} +0.76x_2 +0.40x_5 +0.28x_{14} +0.14x_8
       -0.577235772358
                             +0.37x_9 +0.16x_{20} +0.41x_2 +0.89x_5 +0.93x_{14} +0.76x_8
x_{47}
                             +0.15x_9 +0.74x_{20} +0.90x_2 +0.16x_5 +0.91x_{14} +0.25x_8
       -0.678861788618
x_{48}
       -0.918699186992
                             +0.17x_9 +0.13x_{20} +0.60x_2 +0.18x_5 +0.62x_{14} +0.01x_8
x_{49}
       -0.378048780488
                             +0.26x_9 +0.20x_{20} +0.91x_2 +0.78x_5 +0.42x_{14} +0.01x_8
x_{50}
       -0.768292682927
                             +0.23x_9 +0.36x_{20} +0.61x_2 +0.49x_5 +0.87x_{14} +0.38x_8
x_{51}
       -0.186991869919
                             +0.40x_9 +0.99x_{20} +0.71x_2 +0.18x_5 +0.49x_{14} +0.39x_8
x_{52}
       -0.306910569106
                             +0.91x_9 +0.619x_{20} +0.06x_2 +0.69x_5 +0.84x_{14} +0.76x_8
x_{53}
       -0.69918699187
                             +0.11x_9 +0.46x_{20} +0.00x_2 +0.62x_5 +0.51x_{14} +0.75x_8
x_{\underline{54}}
        27.5630081301
                             -0.10x_9 - 0.76x_{20} - 3.04x_2 - 4.07x_5 - 0.01x_{14} - 0.11x_8
```

Forming the dual dictionary: The Final Dual Dictionary is:

```
8.94980694981
                            +9.62x_{35} +3.73x_{11} -4.56x_2 +7.52x_5 -9.48x_{22} -2.78x_{44}
                            -0.81x_{35} - 0.38x_{11} + 0.13x_2 - 0.64x_5 + 0.86x_{22} + 0.36x_{44}
       1.08494208494
x_6
       2.31274131274
                            +0.23x_{35} +0.09x_{11} +0.69x_2 -0.15x_5 -0.15x_{22} -0.27x_{44}
x_1
                            +2.20x_{35} +0.34x_{11} +1.02x_2 -11.28x_5 -2.28x_{22} -1.73x_{44}
       37.2586872587
x_{12}
       0.864864864865
                            +0.43x_{35} +0.11x_{11} -0.69x_2 +0.16x_5 -0.34x_{22} -0.15x_{44}
x_3
                            -0.14x_{35} - 0.14x_{11} - 0.57x_2 - 0.86x_5 + 0.14x_{22} + 0.00x_{44}
       5.14285714286
x_4
       1.60617760618
                            -0.77x_{35} - 0.23x_{11} - 1.71x_2 - 1.56x_5 + 0.94x_{22} + 1.58x_{44}
x_{13}
       4.6833976834
                            -4.87x_{35} - 2.58x_{11} - 4.31x_2 - 7.51x_5 + 5.99x_{22} + 2.09x_{44}
x_{10}
x_{20}
       0.521235521236
                            +0.05x_{35} +0.15x_{11} -0.84x_2 +0.09x_5 +0.09x_{22} +1.22x_{44}
       2.09652509653
                            -1.88x_{35} -0.93x_{11} -2.51x_2 -3.69x_5 +3.81x_{22} +0.39x_{44}
x_{16}
                            +1.00x_{35} +0.00x_{11} -0.00x_2 +0.00x_5 -0.00x_{22} +0.00x_{44}
              1.0
x_{17}
                            -4.73x_{35} - 2.43x_{11} - 3.74x_2 - 6.65x_5 + 5.85x_{22} + 2.09x_{44}
       4.54054054054
x_{18}
x_9
      0.355212355212
                            +0.32x_{35} -0.60x_{11} -0.49x_2 -0.97x_5 +1.53x_{22} -1.34x_{44}
       1.04247104247
                            +0.09x_{35} +0.31x_{11} -0.68x_2 +0.18x_5 +0.18x_{22} +1.43x_{44}
x_{19}
                            +1.30x_{35} +0.32x_{11} -0.57x_2 -0.51x_5 +1.49x_{22} -0.95x_{44}
      0.594594594595
x_{21}
                            +0.09x_{35} +0.31x_{11} -0.18x_2 -0.82x_5 +1.68x_{22} -1.07x_{44}
      0.042471042471
x_{15}
x_{23}
      0.042471042471
                            +1.09x_{35} +0.31x_{11} -0.18x_2 -0.82x_5 +1.68x_{22} -1.07x_{44}
                            -0.31x_{35} -0.68x_{11} -1.63x_2 -1.67x_5 +2.33x_{22} +0.24x_{44}
       1.81853281853
x_{24}
                            +0.66x_{35} -0.12x_{11} -0.90x_2 -1.39x_5 +2.11x_{22} -1.07x_{44}
      0.471042471042
x_{25}
                            -0.15x_{35} -0.50x_{11} -0.76x_2 -2.04x_5 +2.96x_{22} -0.70x_{44}
      0.555984555985
x_{26}
      0.594594594595
                            +1.30x_{35} +0.32x_{11} -0.57x_2 -0.51x_5 +1.49x_{22} -0.95x_{44}
x_{27}
       1.51351351351
                            +0.76x_{35} +0.19x_{11} -1.58x_2 -1.22x_5 +1.28x_{22} +0.36x_{44}
x_{28}
                            -0.34x_{35} -0.12x_{11} -1.40x_2 -0.39x_5 +0.61x_{22} +1.43x_{44}
       1.47104247104
x_{29}
x_{30}
       0.258687258687
                            +0.20x_{35} +0.34x_{11} +0.02x_2 -0.28x_5 +0.72x_{22} +0.27x_{44}
       3.59845559846
                            -4.06x_{35} - 2.19x_{11} - 3.45x_2 - 5.86x_5 + 5.14x_{22} + 1.73x_{44}
x_{14}
       2.55598455598
                            -0.15x_{35} -0.50x_{11} -2.26x_2 -1.04x_5 +1.46x_{22} +1.80x_{44}
x_{31}
                            -2.69x_{35} - 1.32x_{11} - 2.87x_2 - 4.33x_5 + 3.17x_{22} + 3.26x_{44}
       3.18146718147
x_{34}
                            -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{32}
       2.51351351351
      0.563706563707
                            +0.14x_{35} -0.54x_{11} -1.03x_2 -0.73x_5 +1.77x_{22} +0.15x_{44}
x_{33}
       3.32046332046
                            -2.48x_{35} - 1.94x_{11} - 3.57x_2 - 4.84x_5 + 4.66x_{22} + 1.58x_{44}
x_{36}
       2.51351351351
                            -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{37}
       2.51351351351
                            -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{38}
      0.602316602317
                            +0.59x_{35}+0.29x_{11}+0.17x_2+0.79x_5-0.71x_{22}+0.91x_{44}
x_{39}
      0.803088803089
                            +0.12x_{35} -0.61x_{11} -1.10x_2 -0.28x_5 +1.72x_{22} -0.46x_{44}
x_{40}
                            -3.58x_{35} - 1.93x_{11} - 3.98x_2 - 4.61x_5 + 4.89x_{22} + 2.80x_{44}
       3.98455598456
x_{41}
                            -3.34x_{35} - 1.80x_{11} - 2.99x_2 - 4.98x_5 + 4.52x_{22} + 2.58x_{44}
       3.17760617761
x_{42}
                            -3.24x_{35} - 1.81x_{11} - 3.58x_2 - 4.22x_5 + 4.28x_{22} + 2.36x_{44}
       3.51351351351
x_{43}
                            +1.11x_{35} +0.71x_{11} -0.20x_2 +1.13x_5 -1.87x_{22} +1.19x_{44}
       0.509652509653
x_8
       2.82625482625
                            -3.02x_{35} - 1.72x_{11} - 2.89x_2 - 4.36x_5 + 4.14x_{22} + 2.09x_{44}
x_{45}
x_{46}
      0.888030888031
                            -0.70x_{35} - 1.00x_{11} - 0.97x_2 - 1.92x_5 + 2.58x_{22} - 0.09x_{44}
       3.37837837838
                            -2.81x_{35} - 1.70x_{11} - 3.27x_2 - 4.05x_5 + 3.95x_{22} + 2.22x_{44}
x_{47}
       3.17760617761
                            -3.34x_{35} - 1.80x_{11} - 2.99x_2 - 4.98x_5 + 4.52x_{22} + 2.58x_{44}
x_{48}
                            -2.43x_{35} - 1.43x_{11} - 1.71x_2 - 3.57x_5 + 3.43x_{22} + 1.00x_{44}
       1.42857142857
x_{49}
       1.34362934363
                            -1.61x_{35} -1.05x_{11} -0.85x_2 -1.93x_5 +2.57x_{22} +0.64x_{44}
x_{50}
       2.82625482625
                            -3.02x_{35} - 1.72x_{11} - 2.89x_2 - 4.36x_5 + 4.14x_{22} + 2.09x_{44}
x_{51}
       2.41698841699
                            -1.36x_{35} - 0.88x_{11} - 2.07x_2 - 2.53x_5 + 2.47x_{22} + 1.97x_{44}
x_{52}
       3.51351351351
                            -2.24x_{35} - 1.8 x_{11} - 3.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{53}
                            -1.17x_{35} - 0.58x_{11} - 2.34x_2 - 1.58x_5 + 1.42x_{22} + 2.19x_{44}
       1.79536679537
x_{\underline{54}}
                            -0.13x_{35} - 0.10x_{11} - 2.28x_2 - 4.08x_5 - 0.08x_{22} - 0.95x_{44}
       27.0231660232
 z
```

-0.0965250965251

E40E40E40E

 x_{64}

```
8.94980694981
                                +9.62x_{35} +3.73x_{11} -4.56x_2 +7.52x_5 -9.48x_{22} -2.78x_{44}
x_7
                                -0.81x_{35} - 0.38x_{11} + 0.13x_2 - 0.64x_5 + 0.86x_{22} + 0.36x_{44}
x_6
         1.08494208494
         2.31274131274
                                +0.23x_{35} +0.09x_{11} +0.69x_2 -0.15x_5 -0.15x_{22} -0.27x_{44}
x_1
                                +2.20x_{35} +0.34x_{11} +1.02x_2 -11.28x_5 -2.28x_{22} -1.73x_{44}
         37.2586872587
x_{12}
                                +0.43x_{35} +0.11x_{11} -0.69x_2 +0.16x_5 -0.34x_{22} -0.15x_{44}
x_3
        0.864864864865
                                -0.14x_{35} - 0.14x_{11} - 0.57x_2 - 0.86x_5 + 0.14x_{22} + 0.00x_{44}
         5.14285714286
x_4
                                -0.77x_{35} - 0.23x_{11} - 1.71x_2 - 1.56x_5 + 0.94x_{22} + 1.58x_{44}
         1.60617760618
x_{13}
                                -4.87x_{35} - 2.58x_{11} - 4.31x_2 - 7.51x_5 + 5.99x_{22} + 2.09x_{44}
          4.6833976834
x_{10}
        0.521235521236
                                +0.05x_{35} +0.15x_{11} -0.84x_2 +0.09x_5 +0.09x_{22} +1.22x_{44}
x_{20}
         2.09652509653
                                -1.88x_{35} - 0.93x_{11} - 2.51x_2 - 3.69x_5 + 3.81x_{22} + 0.39x_{44}
x_{16}
                                +1.00x_{35} +0.00x_{11} -0.00x_2 +0.00x_5 -0.00x_{22} +0.00x_{44}
                1.0
x_{17}
                                -4.73x_{35} - 2.43x_{11} - 3.74x_2 - 6.65x_5 + 5.85x_{22} + 2.09x_{44}
x_{18}
         4.54054054054
x_9
        0.355212355212
                                +0.32x_{35} -0.60x_{11} -0.49x_2 -0.97x_5 +1.53x_{22} -1.34x_{44}
         1.04247104247
                                +0.09x_{35} +0.31x_{11} -0.68x_2 +0.18x_5 +0.18x_{22} +1.43x_{44}
x_{19}
                                +1.30x_{35} +0.32x_{11} -0.57x_2 -0.51x_5 +1.49x_{22} -0.95x_{44}
        0.594594594595
x_{21}
                                +0.09x_{35}+0.31x_{11}-0.18x_2-0.82x_5+1.68x_{22}-1.07x_{44}
x_{15}
        0.042471042471
        0.042471042471
                                +1.09x_{35} +0.31x_{11} -0.18x_2 -0.82x_5 +1.68x_{22} -1.07x_{44}
x_{23}
         1.81853281853
                                -0.31x_{35} - 0.68x_{11} - 1.63x_2 - 1.67x_5 + 2.33x_{22} + 0.24x_{44}
x_{24}
                                +0.66x_{35} -0.12x_{11} -0.90x_2 -1.39x_5 +2.11x_{22} -1.07x_{44}
        0.471042471042
x_{25}
                                -0.15x_{35} - 0.50x_{11} - 0.76x_2 - 2.04x_5 + 2.96x_{22} - 0.70x_{44}
        0.555984555985
x_{26}
        0.594594594595
                                +1.30x_{35} +0.32x_{11} -0.57x_2 -0.51x_5 +1.49x_{22} -0.95x_{44}
x_{27}
         1.51351351351
                                +0.76x_{35}+0.19x_{11}-1.58x_2-1.22x_5+1.28x_{22}+0.36x_{44}
x_{28}
                                -0.34x_{35} - 0.12x_{11} - 1.40x_2 - 0.39x_5 + 0.61x_{22} + 1.43x_{44}
         1.47104247104
x_{29}
        0.258687258687
                                +0.20x_{35} +0.34x_{11} +0.02x_2 -0.28x_5 +0.72x_{22} +0.27x_{44}
x_{30}
                                -4.06x_{35} -2.19x_{11} -3.45x_2 -5.86x_5 +5.14x_{22} +1.73x_{44}
         3.59845559846
x_{14}
         2.55598455598
                                -0.15x_{35} - 0.50x_{11} - 2.26x_2 - 1.04x_5 + 1.46x_{22} + 1.80x_{44}
x_{31}
                                -2.69x_{35} - 1.32x_{11} - 2.87x_2 - 4.33x_5 + 3.17x_{22} + 3.26x_{44}
         3.18146718147
x_{34}
                                -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{32}
         2.51351351351
        0.563706563707
                                +0.14x_{35} -0.54x_{11} -1.03x_2 -0.73x_5 +1.77x_{22} +0.15x_{44}
x_{33}
         3.32046332046
                                -2.48x_{35} - 1.94x_{11} - 3.57x_2 - 4.84x_5 + 4.66x_{22} + 1.58x_{44}
x_{36}
         2.51351351351
                                -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{37}
         2.51351351351
                                -3.24x_{35} - 1.81x_{11} - 2.58x_2 - 4.22x_5 + 4.28x_{22} + 1.36x_{44}
x_{38}
                                +0.59x_{35} +0.29x_{11} +0.17x_2 +0.79x_5 -0.71x_{22} +0.91x_{44}
        0.602316602317
x_{39}
                                +0.12x_{35} -0.61x_{11} -1.10x_2 -0.28x_5 +1.72x_{22} -0.46x_{44}
        0.803088803089
x_{40}
                                -3.58x_{35} - 1.93x_{11} - 3.98x_2 - 4.61x_5 + 4.89x_{22} + 2.80x_{44}
         3.98455598456
x_{41}
                                -3.34x_{35} - 1.80x_{11} - 2.99x_2 - 4.98x_5 + 4.52x_{22} + 2.58x_{44}
         3.17760617761
x_{42}
                                -3.24x_{35} - 1.81x_{11} - 3.58x_2 - 4.22x_5 + 4.28x_{22} + 2.36x_{44}
         3.51351351351
x_{43}
                                +1.11x_{35} +0.71x_{11} -0.20x_2 +1.13x_5 -1.87x_{22} +1.19x_{44}
        0.509652509653
x_8
         2.82625482625
                                -3.02x_{35} - 1.72x_{11} - 2.89x_2 - 4.36x_5 + 4.14x_{22} + 2.09x_{44}
x_{45}
x_{46}
        0.888030888031
                                -0.70x_{35} - 1.00x_{11} - 0.97x_2 - 1.92x_5 + 2.58x_{22} - 0.09x_{44}
         3.37837837838
                                -2.81x_{35} - 1.70x_{11} - 3.27x_2 - 4.05x_5 + 3.95x_{22} + 2.22x_{44}
x_{47}
                                -3.34x_{35} - 1.80x_{11} - 2.99x_2 - 4.98x_5 + 4.52x_{22} + 2.58x_{44}
         3.17760617761
x_{48}
                                -2.43x_{35} - 1.43x_{11} - 1.71x_2 - 3.57x_5 + 3.43x_{22} + 1.00x_{44}
         1.42857142857
x_{49}
         1.34362934363
                                -1.61x_{35} - 1.05x_{11} - 0.85x_2 - 1.93x_5 + 2.57x_{22} + 0.64x_{44}
x_{50}
                                -3.02x_{35} - 1.72x_{11} - 2.89x_2 - 4.36x_5 + 4.14x_{22} + 2.09x_{44}
         2.82625482625
x_{51}
         2.41698841699
                                -1.36x_{35} - 0.88x_{11} - 2.07x_2 - 2.53x_5 + 2.47x_{22} + 1.97x_{44}
x_{52}
                                -2.24x_{35} -91.81x_{11} -3.58x_2 -4.22x_5 +4.28x_{22} +1.36x_{44}
x_{53}
         3.51351351351
                                -1.17x_{35} - 0.58x_{11} - 2.34x_2 - 1.58x_5 + 1.42x_{22} + 2.19x_{44}
         1.79536679537
x_{54}
                                +0.38x_{35} +0.27x_{11} +0.56x_2 +0.48x_5 +0.48x_{22} +0.78x_{44}
        -0.949806949807
x_{55}
       -0.0849420849421
                                +0.81x_{35}+0.38x_{11}+0.87x_2+0.64x_5+0.14x_{22}+0.64x_{44}
x_{56}
                                +0.77x_{35} +0.91x_{11} +0.31x_2 +0.15x_5 +0.15x_{22} +0.27x_{44}
        -0.312741312741
x_{57}
                                +0.80x_{35} +0.66x_{11} +0.98x_2 +0.28x_5 +0.28x_{22} +0.73x_{44}
        -0.258687258687
x_{58}
        -0.864864864865
                                +0.57x_{35} +0.89x_{11} +0.69x_2 +0.84x_5 +0.34x_{22} +0.15x_{44}
x_{59}
                                +0.14x_{35} +0.14x_{11} +0.57x_2 +0.86x_5 +0.86x_{22} +1.00x_{44}
        -0.142857142857
x_{60}
x_{61}
       -0.606177606178
                                +0.77x_{35}+0.23x_{11}+0.71x_2+0.56x_5+0.06x_{22}+0.42x_{44}
        -0.683397683398
                                +0.87x_{35} +0.58x_{11} +0.31x_2 +0.51x_5 +0.01x_{22} +0.91x_{44}
x_{62}
       -0.521235521236
                                +0.95x_{35} +0.85x_{11} +0.84x_2 +0.91x_5 +0.91x_{22} +0.78x_{44}
x_{63}
                                +0.88x_{35} +0.93x_{11} +0.51x_2 +0.69x_5 +0.19x_{22} +0.61x_{44}
```

 $\pm 0.74m$

1065~

Forming the dual dictionary: The Final Dual Dictionary is:

```
0.651162790698
                            +0.47x_8 -1.71x_{73} +0.33x_2 -1.40x_5 +1.94x_{55} -0.87x_{44}
x_{35}
                            -0.59x_8 + 0.38x_{73} + 0.03x_2 + 0.28x_5 - 0.55x_{55} + 1.24x_{44}
       1.06976744186
x_6
       2.39534883721
                            +0.14x_8 -0.15x_{73} +0.70x_2 -0.42x_5 +0.25x_{55} -0.53x_{44}
x_1
                            +1.67x_8 -2.77x_{73} +2.37x_2 -14.02x_5 +1.98x_{55} -3.33x_{44}
       36.7441860465
x_{12}
                            +0.29x_8 -0.45x_{73} -0.55x_2 -0.37x_5 +0.46x_{55} -0.54x_{44}
x_3
       0.906976744186
                            -0.09x_8 - 0.12x_{73} - 0.47x_2 - 0.72x_5 - 0.05x_{55} + 0.24x_{44}
       5.06976744186
x_4
       1.83720930233
                            -0.62x_8 + 0.68x_{73} - 2.08x_2 - 0.65x_5 - 0.48x_{55} + 2.22x_{44}
x_{13}
       5.20930232558
                            -3.78x_8 + 1.46x_{73} - 4.90x_2 - 2.16x_5 - 2.33x_{55} + 7.39x_{44}
x_{10}
x_{20}
       0.767441860465
                            -0.02x_8 + 0.30x_{73} - 1.12x_2 + 0.07x_5 + 0.07x_{55} + 0.98x_{44}
                            -1.92x_8 + 0.61x_{73} - 3.59x_2 - 1.74x_5 + 0.42x_{55} + 1.91x_{44}
       3.81395348837
x_{16}
                            +0.47x_8 -1.71x_{73} +0.33x_2 -1.40x_5 +1.94x_{55} -0.87x_{44}
        1.6511627907
x_{17}
                            -3.69x_8 + 1.59x_{73} - 4.43x_2 - 1.44x_5 - 2.28x_{55} + 7.15x_{44}
x_{18}
       5.13953488372
x_9
       1.55813953488
                            -0.24x_8 - 2.16x_{73} - 0.22x_2 - 1.77x_5 + 2.40x_{55} - 1.41x_{44}
       1.53488372093
                            -0.05x_8 + 0.60x_{73} - 1.23x_2 + 0.14x_5 + 0.14x_{55} + 0.95x_{44}
x_{19}
                            +0.12x_8 - 1.51x_{73} - 1.42x_2 - 2.35x_5 + 3.65x_{55} - 2.88x_{44}
       3.16279069767
x_{21}
                            -0.50x_8 + 0.50x_{73} - 1.50x_2 - 1.00x_5 + 1.50x_{55} - 2.00x_{44}
x_{15}
              2.0
        2.6511627907
                            -0.03x_8 - 1.21x_{73} - 1.17x_2 - 2.40x_5 + 3.44x_{55} - 2.87x_{44}
x_{23}
                            -0.77x_8 - 1.36x_{73} - 1.84x_2 - 1.70x_5 + 1.97x_{55} + 0.57x_{44}
       3.32558139535
x_{24}
       2.86046511628
                            -0.31x_8 - 1.59x_{73} - 1.57x_2 - 2.56x_5 + 3.28x_{55} - 2.15x_{44}
x_{25}
                            -0.91x_8 - 1.21x_{73} - 1.53x_2 - 2.28x_5 + 2.72x_{55} - 0.91x_{44}
x_{26}
       2.93023255814
       3.16279069767
                            +0.12x_8 - 1.51x_{73} - 1.42x_2 - 2.35x_5 + 3.65x_{55} - 2.88x_{44}
x_{27}
       3.41860465116
                            -0.06x_8 - 0.91x_{73} - 2.29x_2 - 2.33x_5 + 2.51x_{55} - 0.89x_{44}
x_{28}
                            -0.33x_8 + 0.23x_{73} - 1.63x_2 - 0.02x_5 - 0.02x_{55} + 1.67x_{44}
       1.74418604651
x_{29}
x_{30}
       1.37209302326
                            -0.16x_8 + 0.45x_{73} - 0.81x_2 - 0.51x_5 + 0.82x_{55} - 0.50x_{44}
       4.13953488372
                            -3.19x_8 + 1.09x_{73} - 3.93x_2 - 1.44x_5 - 1.78x_{55} + 6.15x_{44}
x_{14}
       3.46511627907
                            -0.45x_8 - 1.10x_{73} - 2.27x_2 - 1.14x_5 + 1.36x_{55} + 2.05x_{44}
x_{31}
                            -2.06x_8 + 1.09x_{73} - 3.29x_2 - 1.33x_5 - 1.49x_{55} + 6.11x_{44}
       3.41860465116
x_{34}
                            -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{32}
       3.06976744186
       1.93023255814
                            -0.41x_8 - 1.71x_{73} - 1.03x_2 - 1.28x_5 + 2.22x_{55} + 0.09x_{44}
x_{33}
                            -2.34x_8 - 0.95x_{73} - 3.69x_2 - 2.49x_5 + 0.68x_{55} + 4.50x_{44}
       4.62790697674
x_{36}
       3.06976744186
                            -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{37}
       3.06976744186
                            -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{38}
                            +0.45x_8 -0.23x_{73} +0.27x_2 +0.14x_5 +0.31x_{55} +0.29x_{44}
       0.53488372093
x_{39}
                            -0.40x_8 - 1.86x_{73} - 0.98x_2 - 0.81x_5 + 2.19x_{55} - 0.40x_{44}
       2.04651162791
x_{40}
                            -2.92x_8 + 0.94x_{73} - 4.59x_2 - 0.74x_5 - 1.24x_{55} + 6.58x_{44}
       4.81395348837
x_{41}
                            -2.71x_8 + 0.89x_{73} - 3.55x_2 - 1.37x_5 - 1.21x_{55} + 6.12x_{44}
       3.90697674419
x_{42}
                            -2.59x_8 + 0.71x_{73} - 3.97x_2 - 0.72x_5 - 1.22x_{55} + 5.91x_{44}
       4.06976744186
x_{43}
                            +6.91x_8 -6.46x_{73} -2.47x_2 -3.72x_5 +7.61x_{55} -12.43x_{44}
       9.06976744186
x_7
x_{45}
       3.46511627907
                            -2.45x_8 + 0.56x_{73} - 3.27x_2 - 1.14x_5 - 0.97x_{55} + 5.38x_{44}
x_{46}
       2.11627906977
                            -0.99x_8 - 1.48x_{73} - 0.94x_2 - 1.53x_5 + 1.63x_{55} + 0.84x_{44}
       3.97674418605
                            -2.30x_8 + 0.26x_{73} - 3.51x_2 - 1.09x_5 - 0.76x_{55} + 5.36x_{44}
x_{47}
                            -2.71x_8 + 0.89x_{73} - 3.55x_2 - 1.37x_5 - 1.21x_{55} + 6.12x_{44}
       3.90697674419
x_{48}
                            -2.00x_8 + 0.33x_{73} - 2.00x_2 - 1.00x_5 - 0.67x_{55} + 3.67x_{44}
              2.0
x_{49}
       1.93023255814
                            -1.41x_8 - 0.04x_{73} - 1.03x_2 - 0.28x_5 - 0.11x_{55} + 2.43x_{44}
x_{50}
       3.46511627907
                            -2.45x_8 + 0.56x_{73} - 3.27x_2 - 1.14x_5 - 0.97x_{55} + 5.38x_{44}
x_{51}
                            -1.28x_8 -0.04x_{73} -2.40x_2 -1.16x_5 +0.17x_{55} +3.39x_{44}
       3.20930232558
x_{52}
                            -2.13x_8 - 1.00x_{73} - 3.64x_2 - 2.12x_5 + 0.72x_{55} + 4.04x_{44}
x_{53}
       4.72093023256
       1.93023255814
                            -0.91x_8 + 0.46x_{73} - 2.53x_2 - 0.28x_5 - 0.61x_{55} + 3.43x_{44}
x_{54}
       0.976744186046
                            -0.30x_8 -0.07x_{73} -0.51x_2 -0.09x_5 +0.91x_{55} -0.30x_{44}
x_{22}
                            +0.29x_8 -0.45x_{73} +0.45x_2 -0.37x_5 +1.46x_{55} -0.54x_{44}
       0.906976744186
x_{56}
                            +0.21x_8+0.95x_{73}-0.95x_2-0.63x_5+1.04x_{55}-1.46x_{44}
       1.09302325581
x_{57}
                            +0.21x_8 +0.28x_{73} +0.05x_2 -0.63x_5 +1.37x_{55} -0.79x_{44}
       1.09302325581
x_{58}
       0.581395348837
                            +0.06x_8 +1.24x_{73} -0.71x_2 +0.33x_5 +0.83x_{55} -1.44x_{44}
x_{59}
                            -0.21x_8 + 0.05x_{73} - 0.05x_2 + 0.63x_5 + 0.96x_{55} + 0.46x_{44}
       0.906976744186
x_{60}
                            +0.31x_8 -0.75x_{73} +0.57x_2 -0.44x_5 +1.39x_{55} -0.52x_{44}
       0.139534883721
x_{61}
       0.372093023256
                            +0.34x_8 -0.05x_{73} -0.31x_2 -0.51x_5 +1.32x_{55} -0.50x_{44}
x_{62}
                            +0.07x_8+0.43x_{73}-0.65x_2-0.21x_5+2.12x_{55}-1.26x_{44}
        1.6976744186
x_{63}
                            +0.24x_{8}+0.83x_{73}-0.78x_{2}\ -0.23x_{5}\ +1.27x_{55}\ -1.26x_{44}
       1.44186046512
x_{64}
```

 $\perp 0.92$

 0.92°

```
0.651162790698
                                +0.47x_8 -1.71x_{73} +0.33x_2 -1.40x_5 +1.94x_{55} -0.87x_{44}
         1.06976744186
                                -0.59x_8 + 0.38x_{73} + 0.03x_2 + 0.28x_5 - 0.55x_{55} + 1.24x_{44}
x_6
         2.39534883721
                                +0.14x_8 -0.15x_{73} +0.70x_2 -0.42x_5 +0.25x_{55} -0.53x_{44}
x_1
                                +1.67x_8 -2.77x_{73} +2.37x_2 -14.02x_5 +1.98x_{55} -3.33x_{44}
         36.7441860465
x_{12}
                                +0.29x_8 -0.45x_{73} -0.55x_2 -0.37x_5 +0.46x_{55} -0.54x_{44}
x_3
        0.906976744186
                                -0.09x_8 - 0.12x_{73} - 0.47x_2 - 0.72x_5 - 0.05x_{55} + 0.24x_{44}
         5.06976744186
x_4
         1.83720930233
                                -0.62x_8 + 0.68x_{73} - 2.08x_2 - 0.65x_5 - 0.48x_{55} + 2.22x_{44}
x_{13}
         5.20930232558
                                -3.78x_8 + 1.46x_{73} - 4.90x_2 - 2.16x_5 - 2.33x_{55} + 7.39x_{44}
x_{10}
        0.767441860465
                                -0.02x_8 + 0.30x_{73} - 1.12x_2 + 0.07x_5 + 0.07x_{55} + 0.98x_{44}
x_{20}
         3.81395348837
                                -1.92x_8 + 0.61x_{73} - 3.59x_2 - 1.74x_5 + 0.42x_{55} + 1.91x_{44}
x_{16}
                               +0.47x_8 -1.71x_{73} +0.33x_2 -1.40x_5 +1.94x_{55} -0.87x_{44}
          1.6511627907
x_{17}
                                -3.69x_8 + 1.59x_{73} - 4.43x_2 - 1.44x_5 - 2.28x_{55} + 7.15x_{44}
x_{18}
         5.13953488372
x_9
         1.55813953488
                                -0.24x_8 - 2.16x_{73} - 0.22x_2 - 1.77x_5 + 2.40x_{55} - 1.41x_{44}
         1.53488372093
                                -0.05x_8 + 0.60x_{73} - 1.23x_2 + 0.14x_5 + 0.14x_{55} + 0.95x_{44}
x_{19}
         3.16279069767
                               +0.12x_8 - 1.51x_{73} - 1.42x_2 - 2.35x_5 + 3.65x_{55} - 2.88x_{44}
x_{21}
                                -0.50x_8 + 0.50x_{73} - 1.50x_2 - 1.00x_5 + 1.50x_{55} - 2.00x_{44}
x_{15}
                2.0
          2.6511627907
                                -0.03x_8 - 1.21x_{73} - 1.17x_2 - 2.40x_5 + 3.44x_{55} - 2.87x_{44}
x_{23}
         3.32558139535
                                -0.77x_8 - 1.36x_{73} - 1.84x_2 - 1.70x_5 + 1.97x_{55} + 0.57x_{44}
x_{24}
                                -0.31x_8 - 1.59x_{73} - 1.57x_2 - 2.56x_5 + 3.28x_{55} - 2.15x_{44}
         2.86046511628
x_{25}
                                -0.91x_8 - 1.21x_{73} - 1.53x_2 - 2.28x_5 + 2.72x_{55} - 0.91x_{44}
         2.93023255814
x_{26}
         3.16279069767
                                +0.12x_8 - 1.51x_{73} - 1.42x_2 - 2.35x_5 + 3.65x_{55} - 2.88x_{44}
x_{27}
         3.41860465116
                                -0.06x_8 - 0.91x_{73} - 2.29x_2 - 2.33x_5 + 2.51x_{55} - 0.89x_{44}
x_{28}
                                -0.33x_8 + 0.23x_{73} - 1.63x_2 - 0.02x_5 - 0.02x_{55} + 1.67x_{44}
         1.74418604651
x_{29}
         1.37209302326
                                -0.16x_8 + 0.45x_{73} - 0.81x_2 - 0.51x_5 + 0.82x_{55} - 0.50x_{44}
x_{30}
         4.13953488372
                                -3.19x_8 + 1.09x_{73} - 3.93x_2 - 1.44x_5 - 1.78x_{55} + 6.15x_{44}
x_{14}
         3.46511627907
                                -0.45x_8 - 1.10x_{73} - 2.27x_2 - 1.14x_5 + 1.36x_{55} + 2.05x_{44}
x_{31}
                                -2.06x_8 + 1.09x_{73} - 3.29x_2 - 1.33x_5 - 1.49x_{55} + 6.11x_{44}
         3.41860465116
x_{34}
                                -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{32}
         3.06976744186
         1.93023255814
                               -0.41x_8 - 1.71x_{73} - 1.03x_2 - 1.28x_5 + 2.22x_{55} + 0.09x_{44}
x_{33}
                               -2.34x_8 - 0.95x_{73} - 3.69x_2 - 2.49x_5 + 0.68x_{55} + 4.50x_{44}
         4.62790697674
x_{36}
         3.06976744186
                               -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{37}
         3.06976744186
                                -2.59x_8 + 0.71x_{73} - 2.97x_2 - 0.72x_5 - 1.22x_{55} + 4.91x_{44}
x_{38}
         0.53488372093
                               +0.45x_8 -0.23x_{73} +0.27x_2 +0.14x_5 +0.31x_{55} +0.29x_{44}
x_{39}
                               -0.40x_8 - 1.86x_{73} - 0.98x_2 - 0.81x_5 + 2.19x_{55} - 0.40x_{44}
         2.04651162791
x_{40}
                                -2.92x_8 + 0.94x_{73} - 4.59x_2 - 0.74x_5 - 1.24x_{55} + 6.58x_{44}
         4.81395348837
x_{41}
                                -2.71x_8 + 0.89x_{73} - 3.55x_2 - 1.37x_5 - 1.21x_{55} + 6.12x_{44}
         3.90697674419
x_{42}
                                -2.59x_8 + 0.71x_{73} - 3.97x_2 - 0.72x_5 - 1.22x_{55} + 5.91x_{44}
         4.06976744186
x_{43}
                               +6.91x_8 -6.46x_{73} -2.47x_2 -3.72x_5 +7.61x_{55} -12.43x_{44}
         9.06976744186
x_7
x_{45}
         3.46511627907
                                -2.45x_8 + 0.56x_{73} - 3.27x_2 - 1.14x_5 - 0.97x_{55} + 5.38x_{44}
         2.11627906977
                                -0.99x_8 - 1.48x_{73} - 0.94x_2 - 1.53x_5 + 1.63x_{55} + 0.84x_{44}
x_{46}
         3.97674418605
                                -2.30x_8 + 0.26x_{73} - 3.51x_2 - 1.09x_5 - 0.76x_{55} + 5.36x_{44}
x_{47}
                                -2.71x_8 + 0.89x_{73} - 3.55x_2 - 1.37x_5 - 1.21x_{55} + 6.12x_{44}
         3.90697674419
x_{48}
                                -2.00x_8 + 0.33x_{73} - 2.00x_2 - 1.00x_5 - 0.67x_{55} + 3.67x_{44}
                2.0
x_{49}
         1.93023255814
                               -1.41x_8 - 0.04x_{73} - 1.03x_2 - 0.28x_5 - 0.11x_{55} + 2.43x_{44}
x_{50}
         3.46511627907
                               -2.45x_8 + 0.56x_{73} - 3.27x_2 - 1.14x_5 - 0.97x_{55} + 5.38x_{44}
x_{51}
                               -1.28x_8 -0.04x_{73} -2.40x_2 -1.16x_5 +0.17x_{55} +3.39x_{44}
         3.20930232558
x_{52}
x_{53}
         4.72093023256
                               -2.13x_8 - 1200x_{73} - 3.64x_2 - 2.12x_5 + 0.72x_{55} + 4.04x_{44}
         1.93023255814
                                -0.91x_8 + 0.46x_{73} - 2.53x_2 - 0.28x_5 - 0.61x_{55} + 3.43x_{44}
x_{54}
        0.976744186046
                                -0.30x_8 - 0.07x_{73} - 0.51x_2 - 0.09x_5 + 0.91x_{55} - 0.30x_{44}
x_{22}
                                +0.29x_8 -0.45x_{73} +0.45x_2 -0.37x_5 +1.46x_{55} -0.54x_{44}
        0.906976744186
x_{56}
                               +0.21x_8 +0.95x_{73} -0.95x_2 -0.63x_5 +1.04x_{55} -1.46x_{44}
         1.09302325581
x_{57}
                               +0.21x_8+0.28x_{73}+0.05x_2-0.63x_5+1.37x_{55}-0.79x_{44}
         1.09302325581
x_{58}
        0.581395348837
                                +0.06x_8 +1.24x_{73} -0.71x_2 +0.33x_5 +0.83x_{55} -1.44x_{44}
x_{59}
                                -0.21x_8 + 0.05x_{73} - 0.05x_2 + 0.63x_5 + 0.96x_{55} + 0.46x_{44}
        0.906976744186
x_{60}
        0.139534883721
                                +0.31x_8 -0.75x_{73} +0.57x_2 -0.44x_5 +1.39x_{55} -0.52x_{44}
x_{61}
        0.372093023256
                                +0.34x_8 -0.05x_{73} -0.31x_2 -0.51x_5 +1.32x_{55} -0.50x_{44}
x_{62}
                               +0.07x_8 +0.43x_{73} -0.65x_2 -0.21x_5 +2.12x_{55} -1.26x_{44}
          1.6976744186
x_{63}
                               +0.24x_8 + 0.83x_{73} - 0.78x_2 - 0.23x_5 + 1.27x_{55} - 1.26x_{44}
         1.44186046512
x_{64}
```

 $\perp 0.99_{\infty}$

Forming the dual dictionary: The Final Dual Dictionary is:

 x_{64}

```
0.476953907816
                             +0.42x_{148} +0.86x_{179} -0.46x_2 +0.58x_5 +0.41x_9 +0.06x_{49}
x_{55}
       0.717434869739
                             +1.25x_{148} - 0.15x_{179} - 0.20x_2 + 0.10x_5 + 0.00x_9 + 0.18x_{49}
x_{44}
        2.37074148297
                             -0.18x_{148} + 0.08x_{179} + 0.56x_2 -0.38x_5 + 0.08x_9 -0.10x_{49}
x_1
                             +1.72x_{148} - 1.46x_{179} + 0.93x_2 - 13.63x_5 + 0.57x_9 - 0.72x_{49}
        37.5951903808
x_{12}
x_3
        1.15430861723
                             +0.37x_{148} -0.12x_{179} -0.87x_2 -0.24x_5 +0.15x_9 -0.11x_{49}
                             +0.16x_{148} - 0.18x_{179} - 0.33x_2 - 0.66x_5 - 0.01x_9 + 0.06x_{49}
        4.94188376754
x_4
                             +0.91x_{148}+0.23x_{179}-1.75x_2-0.50x_5-0.11x_9+0.47x_{49}
        2.17234468938
x_{13}
                             -0.12x_{148} - 0.03x_{179} + 0.67x_2 + 0.33x_5 - 0.14x_9 + 0.29x_{49}
       0.563126252505
x_6
x_{20}
        1.60921843687
                             +1.03x_{148} +0.26x_{179} -1.42x_2 +0.17x_5 +0.04x_9 +0.18x_{49}
        1.40480961924
                             -1.72x_{148} + 1.46x_{179} - 1.93x_2 - 0.37x_5 + 0.43x_9 + 0.72x_{49}
x_{16}
        2.09018036072\\
                             +1.69x_{148} - 0.25x_{179} - 0.40x_2 - 0.31x_5 + 0.72x_9 - 0.08x_{49}
x_{17}
                             -0.52x_{148} + 0.10x_{179} -0.67x_2 -0.34x_5 -0.42x_9 +1.82x_{49}
x_{18}
        1.74749498998
       0.655310621243
                             +1.18x_{148} + 0.54x_{179} -0.50x_2 +1.00x_5 +0.22x_9 +0.06x_{49}
x_{114}
        2.50100200401
                             +0.81x_{148} + 0.66x_{179} -1.63x_2 +0.24x_5 +0.07x_9 +0.17x_{49}
x_{19}
                             -0.95x_{148} + 1.86x_{179} - 2.15x_2 - 0.30x_5 + 1.46x_9 - 0.28x_{49}
        2.29659318637
x_{21}
x_{15}
       0.422845691383
                             -3.19x_{148} + 2.31x_{179} - 1.32x_2 - 0.13x_5 + 0.68x_9 - 0.19x_{49}
         1.5130260521
                             -1.50x_{148} + 2.06x_{179} -1.72x_2 -0.44x_5 +1.40x_9 -0.27x_{49}
x_{23}
        2.23046092184
                             +0.75x_{148} +0.41x_{179} -1.42x_2 +0.16x_5 +0.90x_9 +0.41x_{49}
x_{24}
                             -1.03x_{148} + 1.51x_{179} - 1.71x_2 - 0.41x_5 + 1.37x_9 - 0.09x_{49}
        1.33867735471
x_{25}
       0.901803607214
                             -1.15x_{148} + 1.48x_{179} -1.04x_2 -0.08x_5 +1.22x_9 +0.21x_{49}
x_{26}
                             -0.95x_{148} + 1.86x_{179} - 2.15x_2 - 0.30x_5 + 1.46x_9 - 0.28x_{49}
        2.29659318637
x_{27}
         3.3627254509
                             +0.36x_{148}+1.31x_{179}-2.88x_2-0.76x_5+1.03x_9+0.03x_{49}
x_{28}
                             +1.28x_{148} + 0.11x_{179} -1.62x_2 +0.26x_5 +0.04x_9 +0.36x_{49}
        2.32665330661
x_{29}
        1.28056112224
                             -0.87x_{148} + 1.33x_{179} - 1.03x_2 - 0.07x_5 + 0.36x_9 - 0.02x_{49}
x_{30}
        1.68937875752
                             -0.36x_{148} - 0.08x_{179} - 1.00x_2 - 1.00x_5 - 0.43x_9 + 1.88x_{49}
x_{10}
        3.97995991984
                             +2.85x_{148} - 0.17x_{179} - 2.35x_2 + 0.29x_5 + 0.62x_9 + 0.57x_{49}
x_{31}
                             +2.15x_{148} - 0.22x_{179} - 1.58x_2 - 0.67x_5 - 0.32x_9 + 1.38x_{49}
        3.04609218437
x_{34}
                             -0.58x_{148} + 1.09x_{179} - 0.34x_2 - 0.17x_5 + 0.01x_9 - 0.03x_{49}
x_{73}
       0.529058116232
        1.23847695391
                             +1.21x_{148} + 0.18x_{179} -0.98x_2 +0.54x_5 +0.95x_9 +0.28x_{49}
x_{33}
                             +1.66x_{148} - 0.24x_{179} - 1.61x_2 - 0.22x_5 + 0.59x_9 + 1.33x_{49}
        2.42885771543
x_{36}
                             -0.12x_{148} - 0.03x_{179} - 0.33x_2 + 0.33x_5 - 0.14x_9 + 1.29x_{49}
       0.563126252505
x_{37}
       0.563126252505
                             -0.12x_{148} - 0.03x_{179} - 0.33x_2 + 0.33x_5 - 0.14x_9 + 1.29x_{49}
x_{38}
        1.78356713427
                             +1.56x_{148} - 0.20x_{179} - 0.43x_2 + 0.14x_5 + 0.07x_9 - 0.01x_{49}
x_{39}
                             +0.70x_{148} +0.05x_{179} -0.77x_2 +0.96x_5 +0.94x_9 +0.19x_{49}
       0.933867735471
x_{40}
        2.88977955912
                             +1.16x_{148} +0.09x_{179} -1.95x_2 +0.60x_5 -0.11x_9 +1.65x_{49}
x_{41}
        2.11422845691
                             +1.07x_{148} + 0.05x_{179} -1.08x_2 -0.16x_5 -0.12x_9 +1.53x_{49}
x_{42}
        2.28056112224
                             +1.13x_{148} - 0.17x_{179} - 1.53x_2 + 0.43x_5 - 0.14x_9 + 1.48x_{49}
x_{43}
                             +5.63x_{148} - 1.26x_{179} - 10.07x_2 - 3.14x_5 + 2.15x_9 - 2.93x_{49}
x_7
         15.871743487
x_{45}
        1.65130260521
                             +0.95x_{148} -0.09x_{179} -0.97x_2 +0.06x_5 -0.06x_9 +1.37x_{49}
       0.496993987976
                             +0.58x_{148} +0.03x_{179} -0.10x_2 +0.29x_5 +0.79x_9 +0.49x_{49}
x_{46}
        2.43486973948
                             +1.51x_{148} - 0.29x_{179} - 1.40x_2 + 0.19x_5 + 0.01x_9 + 1.36x_{49}
x_{47}
                             +1.07x_{148} + 0.05x_{179} -1.08x_2 -0.16x_5 -0.12x_9 +1.53x_{49}
        2.11422845691
x_{48}
        1.12625250501
                             -0.24x_{148} - 0.05x_{179} - 0.67x_2 - 0.33x_5 - 0.29x_9 + 1.59x_{49}
x_{14}
                             +0.12x_{148} + 0.03x_{179} + 0.33x_2 + 0.67x_5 + 0.14x_9 + 0.71x_{49}
       0.436873747495
x_{50}
        1.65130260521
                             +0.95x_{148} -0.09x_{179} -0.97x_2 +0.06x_5 -0.06x_9 +1.37x_{49}
x_{51}
                             +1.71x_{148} +0.09x_{179} -1.52x_2 -0.03x_5 +0.25x_9 +0.87x_{49}
        2.82965931864
x_{52}
x_{53}
        2.65330661323
                             +1.57x_{148} - 0428x_{179} -1.74x_2 +0.03x_5 +0.58x_9 +1.22x_{49}
        2.30260521042
                             +1.90x_{148} - 0.19x_{179} - 1.94x_2 + 0.11x_5 - 0.12x_9 + 0.75x_{49}
x_{54}
                             -0.58x_{148} + 0.86x_{179} -0.46x_2 +0.58x_5 +0.41x_9 +0.06x_{49}
       0.476953907816
x_{22}
                             +0.80x_{148} +0.74x_{179} -0.33x_2 +0.35x_5 +0.56x_9 -0.05x_{49}
        1.63126252505
x_{56}
         1.5130260521
                             -1.50x_{148} + 2.06x_{179} -1.72x_2 -0.44x_5 +0.40x_9 -0.27x_{49}
x_{57}
        1.79759519038
                             -0.14x_{148} + 1.52x_{179} - 0.78x_2 - 0.07x_5 + 0.53x_9 - 0.11x_{49}
x_{58}
       0.729458917836
                             -2.06x_{148} + 2.25x_{179} -1.29x_2 +0.42x_5 +0.33x_9 -0.26x_{49}
x_{59}
                             +0.52x_{148} +0.90x_{179} -0.33x_2 +1.34x_5 +0.42x_9 +0.18x_{49}
x_{60}
        1.25250501002
x_{108}
        1.50901803607
                             +2.27x_{148} +0.42x_{179} -1.19x_2 +0.62x_5 +0.12x_9 +0.04x_{49}
        1.37675350701
                             +0.66x_{148}+1.03x_{179}-1.23x_2+0.04x_5+0.50x_9-0.08x_{49}
x_{62}
                             -0.78x_{148} + 2.45x_{179} -1.60x_2 +0.80x_5 +0.86x_9 -0.13x_{49}
        2.18637274549
x_{63}
                             -1.01x_{148} + 2.08x_{179} -1.69x_2 +0.11x_5 +0.49x_9 -0.23x_{49}
        2.13026052104
```

0.56~

2106272745

```
0.476953907816
                               +0.42x_{148}+0.86x_{179} -0.46x_2 +0.58x_5 +0.41x_9+0.06x_{49}
x_{55}
        0.717434869739
                               +1.25x_{148} - 0.15x_{179} - 0.20x_2 + 0.10x_5 + 0.00x_9 + 0.18x_{49}
x_{44}
                               -0.18x_{148} + 0.08x_{179} + 0.56x_2 -0.38x_5 +0.08x_9 -0.10x_{49}
         2.37074148297
x_1
                               +1.72x_{148} - 1.46x_{179} + 0.93x_2 - 13.63x_5 + 0.57x_9 - 0.72x_{49}
         37.5951903808
x_{12}
x_3
         1.15430861723
                               +0.37x_{148} - 0.12x_{179} - 0.87x_2 - 0.24x_5 + 0.15x_9 - 0.11x_{49}
         4.94188376754
                               +0.16x_{148} - 0.18x_{179} - 0.33x_2 - 0.66x_5 - 0.01x_9 + 0.06x_{49}
x_4
                               +0.91x_{148} +0.23x_{179} -1.75x_2 -0.50x_5 -0.11x_9 +0.47x_{49}
         2.17234468938
x_{13}
        0.563126252505
                               -0.12x_{148} - 0.03x_{179} + 0.67x_2 + 0.33x_5 - 0.14x_9 + 0.29x_{49}
x_6
         1.60921843687
                               +1.03x_{148} +0.26x_{179} -1.42x_2 +0.17x_5 +0.04x_9 +0.18x_{49}
x_{20}
         1.40480961924
                               -1.72x_{148} + 1.46x_{179} - 1.93x_2 - 0.37x_5 + 0.43x_9 + 0.72x_{49}
x_{16}
                               +1.69x_{148} - 0.25x_{179} - 0.40x_2 - 0.31x_5 + 0.72x_9 - 0.08x_{49}
         2.09018036072
x_{17}
                               -0.52x_{148} + 0.10x_{179} -0.67x_2 -0.34x_5 -0.42x_9 +1.82x_{49}
x_{18}
         1.74749498998
x_{114}
        0.655310621243
                               +1.18x_{148} + 0.54x_{179} -0.50x_2 +1.00x_5 +0.22x_9 +0.06x_{49}
         2.50100200401
                               +0.81x_{148} + 0.66x_{179} -1.63x_2 +0.24x_5 +0.07x_9 +0.17x_{49}
x_{19}
         2.29659318637
                               -0.95x_{148} + 1.86x_{179} - 2.15x_2 - 0.30x_5 + 1.46x_9 - 0.28x_{49}
x_{21}
                               -3.19x_{148} + 2.31x_{179} -1.32x_2 -0.13x_5 +0.68x_9 -0.19x_{49}
        0.422845691383
x_{15}
          1.5130260521
                               -1.50x_{148} + 2.06x_{179} -1.72x_2 -0.44x_5 +1.40x_9 -0.27x_{49}
x_{23}
         2.23046092184
                               +0.75x_{148}+0.41x_{179} -1.42x_2 +0.16x_5 +0.90x_9+0.41x_{49}
x_{24}
                               -1.03x_{148} + 1.51x_{179} -1.71x_2 -0.41x_5 +1.37x_9 -0.09x_{49}
         1.33867735471
x_{25}
                               -1.15x_{148} + 1.48x_{179} -1.04x_2 -0.08x_5 +1.22x_9 +0.21x_{49}
        0.901803607214
x_{26}
         2.29659318637
                               -0.95x_{148} + 1.86x_{179} - 2.15x_2 - 0.30x_5 + 1.46x_9 - 0.28x_{49}
x_{27}
          3.3627254509
                               +0.36x_{148}+1.31x_{179}-2.88x_2-0.76x_5+1.03x_9+0.03x_{49}
x_{28}
                               +1.28x_{148} + 0.11x_{179} -1.62x_2 +0.26x_5 +0.04x_9 +0.36x_{49}
         2.32665330661
x_{29}
         1.28056112224
                               -0.87x_{148} + 1.33x_{179} - 1.03x_2 - 0.07x_5 + 0.36x_9 - 0.02x_{49}
x_{30}
         1.68937875752
                               -0.36x_{148} - 0.08x_{179} - 1.00x_2 - 1.00x_5 - 0.43x_9 + 1.88x_{49}
x_{10}
         3.97995991984
                               +2.85x_{148} - 0.17x_{179} - 2.35x_2 + 0.29x_5 + 0.62x_9 + 0.57x_{49}
x_{31}
                               +2.15x_{148} - 0.22x_{179} - 1.58x_2 - 0.67x_5 - 0.32x_9 + 1.38x_{49}
         3.04609218437
x_{34}
                               -0.58x_{148} + 1.09x_{179} - 0.34x_2 - 0.17x_5 + 0.01x_9 - 0.03x_{49}
x_{73}
        0.529058116232
         1.23847695391
                               +1.21x_{148} + 0.18x_{179} -0.98x_2 +0.54x_5 +0.95x_9 +0.28x_{49}
x_{33}
                               +1.66x_{148} - 0.24x_{179} - 1.61x_2 - 0.22x_5 + 0.59x_9 + 1.33x_{49}
         2.42885771543
x_{36}
        0.563126252505
                               -0.12x_{148} - 0.03x_{179} - 0.33x_2 + 0.33x_5 - 0.14x_9 + 1.29x_{49}
x_{37}
        0.563126252505
                               -0.12x_{148} - 0.03x_{179} - 0.33x_2 + 0.33x_5 - 0.14x_9 + 1.29x_{49}
x_{38}
         1.78356713427
                               +1.56x_{148} - 0.20x_{179} - 0.43x_2 + 0.14x_5 + 0.07x_9 - 0.01x_{49}
x_{39}
                               +0.70x_{148} +0.05x_{179} -0.77x_2 +0.96x_5 +0.94x_9 +0.19x_{49}
        0.933867735471
x_{40}
         2.88977955912
                               +1.16x_{148} + 0.09x_{179} -1.95x_2 +0.60x_5 -0.11x_9 +1.65x_{49}
x_{41}
         2.11422845691
                               +1.07x_{148} + 0.05x_{179} -1.08x_2 -0.16x_5 -0.12x_9 +1.53x_{49}
x_{42}
         2.28056112224
                               +1.13x_{148} - 0.17x_{179} - 1.53x_2 + 0.43x_5 - 0.14x_9 + 1.48x_{49}
x_{43}
                               +5.63x_{148} - 1.26x_{179} - 10.07x_2 - 3.14x_5 + 2.15x_9 - 2.93x_{49}
          15.871743487
x_7
x_{45}
         1.65130260521
                               +0.95x_{148} -0.09x_{179} -0.97x_2 +0.06x_5 -0.06x_9 +1.37x_{49}
        0.496993987976
                               +0.58x_{148} +0.03x_{179} -0.10x_2 +0.29x_5 +0.79x_9 +0.49x_{49}
x_{46}
         2.43486973948
                               +1.51x_{148} - 0.29x_{179} - 1.40x_2 + 0.19x_5 + 0.01x_9 + 1.36x_{49}
x_{47}
                               +1.07x_{148} + 0.05x_{179} -1.08x_2 -0.16x_5 -0.12x_9 +1.53x_{49}
         2.11422845691
x_{48}
                               -0.24x_{148} - 0.05x_{179} - 0.67x_2 - 0.33x_5 - 0.29x_9 + 1.59x_{49}
         1.12625250501
x_{14}
        0.436873747495
                               +0.12x_{148} + 0.03x_{179} + 0.33x_2 + 0.67x_5 + 0.14x_9 + 0.71x_{49}
x_{50}
         1.65130260521
                               +0.95x_{148} - 0.09x_{179} - 0.97x_2 + 0.06x_5 - 0.06x_9 + 1.37x_{49}
x_{51}
                               +1.71x_{148} +0.09x_{179} -1.52x_2 -0.03x_5 +0.25x_9 +0.87x_{49}
         2.82965931864
x_{52}
x_{53}
         2.65330661323
                               +1.57x_{148} + 50.28x_{179} -1.74x_2 +0.03x_5 +0.58x_9 +1.22x_{49}
         2.30260521042
                               +1.90x_{148} -0.19x_{179} -1.94x_2 +0.11x_5 -0.12x_9 +0.75x_{49}
x_{54}
        0.476953907816
                               -0.58x_{148} + 0.86x_{179} -0.46x_2 +0.58x_5 +0.41x_9 +0.06x_{49}
x_{22}
         1.63126252505
                               +0.80x_{148} +0.74x_{179} -0.33x_2 +0.35x_5 +0.56x_9 -0.05x_{49}
x_{56}
                               -1.50x_{148} + 2.06x_{179} -1.72x_2 -0.44x_5 +0.40x_9 -0.27x_{49}
          1.5130260521
x_{57}
                               -0.14x_{148} + 1.52x_{179} -0.78x_2 -0.07x_5 +0.53x_9 -0.11x_{49}
         1.79759519038
x_{58}
        0.729458917836
                               -2.06x_{148} + 2.25x_{179} -1.29x_2 +0.42x_5 +0.33x_9 -0.26x_{49}
x_{59}
                               +0.52x_{148} +0.90x_{179} -0.33x_2 +1.34x_5 +0.42x_9 +0.18x_{49}
         1.25250501002
x_{60}
x_{108}
         1.50901803607
                               +2.27x_{148} + 0.42x_{179} -1.19x_2 +0.62x_5 +0.12x_9 +0.04x_{49}
         1.37675350701
                               +0.66x_{148}+1.03x_{179}-1.23x_2+0.04x_5+0.50x_9-0.08x_{49}
x_{62}
                               -0.78x_{148} + 2.45x_{179} -1.60x_2 +0.80x_5 +0.86x_9 -0.13x_{49}
         2.18637274549
x_{63}
                               -1.01x_{148} + 2.08x_{179} -1.69x_2 +0.11x_5 +0.49x_9 -0.23x_{49}
         2.13026052104
x_{64}
```

0.56~

10.200

Forming the dual dictionary: The Final Dual Dictionary is:

```
3.5
                                      -6.88x_{356} + 11.63x_{322} - 6.88x_2 - 5.00x_5 + 2.50x_{219} - 1.63x_{202}
x_{55}
                   1.0
                                      +4.13x_{356} -4.38x_{322} +1.13x_2 +1.50x_5 -1.00x_{219} +0.88x_{202}
x_{44}
                                      -1.13x_{356} \ +1.38x_{322} \ -0.13x_2 \ -1.00x_5 \ +0.50x_{219} -0.38x_{202}
                   2.5
 x_1
                                     +16.88x_{356} - 25.63x_{322} + 10.88x_2 - 4.50x_5 - 2.00x_{219} + 2.13x_{202}
                  34.0
x_{12}
x_3
                   1.0
                                      +1.88x_{356} -2.63x_{322} -0.12x_2 +0.50x_5 -0.00x_{219} +0.13x_{202}
                                      +2.00x_{356} \quad -3.00x_{322} \quad +1.00x_2 \quad +0.50x_5 \quad -0.50x_{219} \\ +0.50x_{202}
                   4.5
 x_4
                   3.5
                                      -0.00x_{356} +2.00x_{322} -3.00x_2 -1.50x_5 -0.50x_{219} +0.50x_{202}
x_{13}
                   2.5
                                      -6.38x_{356} + 12.13x_{322} -5.38x_2 -5.00x_5 +1.50x_{219} -1.13x_{202}
x_{229}
x_{20}
                   3.0
                                      -0.00x_{356} +2.00x_{322} -3.00x_2 -1.00x_5 +0.00x_{219} -0.00x_{202}
            5.49999999999
                                     -17.13x_{356} + 24.38x_{322} - 13.13x_2 - 11.00x_5 + 4.50x_{219} - 2.38x_{202}
x_{16}
                   2.5
                                      +5.88x_{356} -7.63x_{322} +0.88x_2 +1.00x_5 +0.50x_{219} +0.63x_{202}
x_{17}
                                      -2.00x_{356} +3.00x_{322} -1.00x_2 -1.50x_5 -1.50x_{219} +2.50x_{202}
x_{18}
                   2.5
x_{114}
                   3.0
                                      -2.25x_{356} +5.75x_{322} -4.25x_2 -2.00x_5 +1.00x_{219} -0.75x_{202}
                   5.0
                                      -4.13x_{356} +8.38x_{322} -6.13x_2 -3.50x_5 +1.00x_{219} -0.88x_{202}
x_{19}
            7.9999999999
                                     -19.25x_{356} + 27.75x_{322} - 17.25x_2 - 14.00x_5 + 8.00x_{219} - 4.75x_{202}
x_{21}
            5.9999999999
                                     -28.13x_{356} + 39.38x_{322} - 19.13x_2 - 16.50x_5 + 8.00x_{219} - 5.88x_{202}
x_{15}
            7.49999999999
                                     -22.25x_{356} + 31.75x_{322} - 18.25x_2 - 15.50x_5 + 8.50x_{219} - 5.25x_{202}
x_{23}
                   4.5
                                      -2.25x_{356} +3.75x_{322} -5.25x_2 -3.50x_5 +2.50x_{219} -0.25x_{202}
x_{24}
            5.9999999999
                                     -16.25x_{356} + 22.75x_{322} - 14.25x_2 - 12.00x_5 + 7.00x_{219} - 3.75x_{202}
x_{25}
            5.49999999999
                                     -16.25x_{356} + 22.75x_{322} - 13.25x_2 - 11.50x_5 + 6.50x_{219} - 3.25x_{202}
x_{26}
            7.99999999999
                                     -19.25x_{356} + 27.75x_{322} - 17.25x_2 - 14.00x_5 + 8.00x_{219} - 4.75x_{202}
x_{27}
                   8.0
                                     -11.25x_{356} + 17.75x_{322} - 13.25x_2 - 10.00x_5 + 5.00x_{219} - 2.75x_{202}
x_{28}
                   3.5
                                      +1.87x_{356} -0.62x_{322} -2.13x_2 -0.00x_5 -0.50x_{219} +0.63x_{202}
x_{29}
                   5.0
                                     -14.00x_{356} + 21.00x_{322} - 11.00x_2 - 9.00x_5 + 4.00x_{219} - 3.00x_{202}
x_{30}
x_6
                   0.5
                                      +0.00x_{356} +0.00x_{322} +1.00x_2 +0.50x_5 -0.50x_{219} +0.50x_{202}
                   5.5
                                      +7.75x_{356} -8.25x_{322} -1.25x_2 +1.50x_5 -0.50x_{219} +1.75x_{202}
x_{31}
                                      +6.88x_{356} -6.63x_{322} +0.88x_2 +1.50x_5 -3.00x_{219} +3.13x_{202}
                   4.0
x_{34}
x_{73}
                   3.5
                                     -11.13x_{356} + 17.38x_{322} - 8.13x_2 - 7.00x_5 + 2.50x_{219} - 2.38x_{202}
                   3.0
                                      +0.88x_{356} -0.63x_{322} -3.12x_2 -1.50x_5 +2.00x_{219} +0.13x_{202}
x_{33}
                                      +5.75x_{356} \quad -7.25x_{322} \quad -0.25x_2 \quad +0.50x_5 \quad -0.50x_{219} \\ +2.75x_{202}
                   3.5
x_{36}
                                      +0.00x_{356} -0.00x_{322} +0.00x_2 +0.00x_5 -1.00x_{219} +2.00x_{202}
                   1.0
x_{37}
                   1.0
                                      +0.00x_{356} -0.00x_{322} +0.00x_2 +0.00x_5 -1.00x_{219} +2.00x_{202}
x_{38}
                   2.0
                                      +5.25x_{356}
                                                   -5.75x_{322} +1.25x_2 +2.00x_5 -1.00x_{219} +0.75x_{202}
x_{39}
                                                   -1.63x_{322} -2.12x_2 -0.50x_5 +2.00x_{219} +0.13x_{202}
                   2.0
                                      +0.88x_{356}
x_{40}
                   4.5
                                                   -0.62x_{322} -2.13x_2 -0.00x_5 -1.50x_{219} + 2.63x_{202}
                                      +1.87x_{356}
x_{41}
                   3.5
                                                   -1.00x_{322} -1.00x_2 -0.50x_5 -1.50x_{219} + 2.50x_{202}
x_{42}
                                      +2.00x_{356}
                   3.0
                                      +4.13x_{356} -4.38x_{322} +0.13x_2 +1.50x_5 -2.00x_{219} +2.88x_{202}
x_{43}
                  14.5
                                     +23.50x_{356} -31.50x_{322} -2.50x_2 +5.50x_5 +1.50x_{219} -1.00x_{202}
 x_7
x_{45}
                   2.5
                                      +3.00x_{356} -3.00x_{322} +0.00x_2 +0.50x_5 -1.50x_{219} +2.50x_{202}
                                                   -1.63x_{322} -1.12x_2 -1.00x_5 +1.50x_{219} +0.63x_{202}
x_{46}
                   1.5
                                      +0.88x_{356}
                                                   -7.00x_{322} +1.00x_2 +2.00x_5 -2.00x_{219} +3.00x_{202}
                   3.0
                                      +6.00x_{356}
x_{47}
                                                    -1.00x_{322} -1.00x_2 -0.50x_5 -1.50x_{219} + 2.50x_{202}
                   3.5
                                      +2.00x_{356}
x_{48}
                   2.0
                                      +0.00x_{356}
                                                   -0.00x_{322} +0.00x_2 -1.00x_5 -2.00x_{219} +3.00x_{202}
x_{10}
                                                   -0.00x_{322} +0.00x_2 +0.00x_5 -0.00x_{219} +1.00x_{202}
                   1.0
x_{50}
                                      +0.00x_{356}
                   2.5
                                      +3.00x_{356}
                                                   -3.00x_{322} +0.00x_2 +0.50x_5 -1.50x_{219} +2.50x_{202}
x_{51}
                   4.5
                                      +3.00x_{356} -2.00x_{322} -2.00x_2 -0.50x_5 -0.50x_{219} +1.50x_{202}
x_{52}
x_{53}
                   3.5
                                      +5.88 \mathfrak{p}_{56} -7.63 x_{322} -0.12 x_2 +1.00 x_5 -0.50 x_{219} +2.63 x_{202}
                                      +6.00x_{356} -6.00x_{322} +0.00x_2 +2.00x_5 -2.00x_{219} +2.00x_{202}
                   3.0
x_{54}
                   3.0
                                      -9.13x_{356} + 13.38x_{322} - 7.13x_2 - 5.50x_5 + 3.00x_{219} - 1.88x_{202}
x_{22}
                                      -5.00x_{356} +9.00x_{322} -6.00x_2 -4.50x_5 +2.50x_{219} -1.50x_{202}
                   4.5
x_{56}
            6.999999999999
                                     -22.00x_{356} + 33.00x_{322} - 17.00x_2 - 14.00x_5 + 6.00x_{219} - 5.00x_{202}
x_{57}
                                     -14.13x_{356} + 22.38x_{322} - 12.13x_2 - 10.00x_5 + 4.50x_{219} - 3.38x_{202}
            6.499999999999
x_{58}
            6.49999999999
                                     -25.00x_{356} + 37.00x_{322} - 18.00x_2 - 14.50x_5 + 6.50x_{219} - 5.50x_{202}
x_{59}
                   4.5
                                      -7.00x_{356} +12.00x_{322} -7.00x_2 -4.50x_5 +2.50x_{219} -1.50x_{202}
x_{60}
x_{108}
                   4.0
                                      +1.25x_{356} +2.25x_{322} -3.75x_2 -1.00x_5 +0.00x_{219} -0.25x_{202}
                   5.0
                                      -7.88x_{356} +13.63x_{322} -8.88x_2 -6.50x_5 +3.00x_{219} -2.13x_{202}
x_{62}
            9.49999999999
                                     -24.00x_{356} + 37.00x_{322} - 20.00x_2 - 15.50x_5 + 7.50x_{219} - 5.50x_{202}
x_{63}
            7.99999999999
                                     -21.13x_{356} + 32.38x_{322} - 17.13x_2 - 13.50x_5 + 6.00x_{219} - 4.88x_{202}
x_{64}
```

6000

5.00~

```
3.5
                                     -6.88x_{356} + 11.63x_{322} - 6.88x_2 - 5.00x_5 + 2.50x_{219} - 1.63x_{202}
x_{55}
                   1.0
                                     +4.13x_{356} -4.38x_{322} +1.13x_2 +1.50x_5 -1.00x_{219} +0.88x_{202}
x_{44}
                   2.5
                                     -1.13x_{356} \ +1.38x_{322} \ -0.13x_2 \ -1.00x_5 \ +0.50x_{219} -0.38x_{202}
 x_1
                                     +16.88x_{356} - 25.63x_{322} + 10.88x_2 - 4.50x_5 - 2.00x_{219} + 2.13x_{202}
                  34.0
x_{12}
x_3
                   1.0
                                     +1.88x_{356} -2.63x_{322} -0.12x_2 +0.50x_5 -0.00x_{219} +0.13x_{202}
                                     +2.00x_{356} \quad -3.00x_{322} \quad +1.00x_2 \quad +0.50x_5 \quad -0.50x_{219} \\ +0.50x_{202}
                   4.5
 x_4
                   3.5
                                     -0.00x_{356} +2.00x_{322} -3.00x_2 -1.50x_5 -0.50x_{219} +0.50x_{202}
x_{13}
                   2.5
                                     -6.38x_{356} + 12.13x_{322} -5.38x_2 -5.00x_5 +1.50x_{219} -1.13x_{202}
x_{229}
x_{20}
                   3.0
                                     -0.00x_{356} +2.00x_{322} -3.00x_2 -1.00x_5 +0.00x_{219} -0.00x_{202}
            5.49999999999
                                     -17.13x_{356} + 24.38x_{322} - 13.13x_2 - 11.00x_5 + 4.50x_{219} - 2.38x_{202}
x_{16}
                   2.5
                                     +5.88x_{356} -7.63x_{322} +0.88x_2 +1.00x_5 +0.50x_{219} +0.63x_{202}
x_{17}
                                     -2.00x_{356} +3.00x_{322} -1.00x_2 -1.50x_5 -1.50x_{219} +2.50x_{202}
x_{18}
                   2.5
x_{114}
                   3.0
                                     -2.25x_{356} +5.75x_{322} -4.25x_2 -2.00x_5 +1.00x_{219} -0.75x_{202}
                   5.0
                                     -4.13x_{356} +8.38x_{322} -6.13x_2 -3.50x_5 +1.00x_{219} -0.88x_{202}
x_{19}
            7.9999999999
                                     -19.25x_{356} + 27.75x_{322} - 17.25x_2 - 14.00x_5 + 8.00x_{219} - 4.75x_{202}
x_{21}
            5.9999999999
                                     -28.13x_{356} + 39.38x_{322} - 19.13x_2 - 16.50x_5 + 8.00x_{219} - 5.88x_{202}
x_{15}
            7.49999999999
                                     -22.25x_{356} + 31.75x_{322} - 18.25x_2 - 15.50x_5 + 8.50x_{219} - 5.25x_{202}
x_{23}
                   4.5
                                     -2.25x_{356} +3.75x_{322} -5.25x_2 -3.50x_5 +2.50x_{219} -0.25x_{202}
x_{24}
            5.9999999999
                                     -16.25x_{356} + 22.75x_{322} - 14.25x_2 - 12.00x_5 + 7.00x_{219} - 3.75x_{202}
x_{25}
            5.49999999999
                                     -16.25x_{356} + 22.75x_{322} - 13.25x_2 - 11.50x_5 + 6.50x_{219} - 3.25x_{202}
x_{26}
            7.99999999999
                                     -19.25x_{356} + 27.75x_{322} - 17.25x_2 - 14.00x_5 + 8.00x_{219} - 4.75x_{202}
x_{27}
                   8.0
                                     -11.25x_{356} + 17.75x_{322} - 13.25x_2 - 10.00x_5 + 5.00x_{219} - 2.75x_{202}
x_{28}
                   3.5
                                     +1.87x_{356} -0.62x_{322} -2.13x_2 -0.00x_5 -0.50x_{219} +0.63x_{202}
x_{29}
                   5.0
                                     -14.00x_{356} + 21.00x_{322} - 11.00x_2 - 9.00x_5 + 4.00x_{219} - 3.00x_{202}
x_{30}
                   0.5
                                     +0.00x_{356} +0.00x_{322} +1.00x_2 +0.50x_5 -0.50x_{219} +0.50x_{202}
x_6
                   5.5
                                     +7.75x_{356} -8.25x_{322} -1.25x_2 +1.50x_5 -0.50x_{219} +1.75x_{202}
x_{31}
                                     +6.88x_{356} -6.63x_{322} +0.88x_2 +1.50x_5 -3.00x_{219} +3.13x_{202}
                   4.0
x_{34}
x_{73}
                   3.5
                                     -11.13x_{356} + 17.38x_{322} - 8.13x_2 - 7.00x_5 + 2.50x_{219} - 2.38x_{202}
                   3.0
                                     +0.88x_{356} -0.63x_{322} -3.12x_2 -1.50x_5 +2.00x_{219} +0.13x_{202}
x_{33}
                                     +5.75x_{356} \quad -7.25x_{322} \quad -0.25x_2 \quad +0.50x_5 \quad -0.50x_{219} \\ +2.75x_{202}
                   3.5
x_{36}
                                     +0.00x_{356} -0.00x_{322} +0.00x_2 +0.00x_5 -1.00x_{219} +2.00x_{202}
                   1.0
x_{37}
                   1.0
                                     +0.00x_{356} -0.00x_{322} +0.00x_2 +0.00x_5 -1.00x_{219} +2.00x_{202}
x_{38}
                   2.0
                                     +5.25x_{356}
                                                   -5.75x_{322} +1.25x_2 +2.00x_5 -1.00x_{219} +0.75x_{202}
x_{39}
                   2.0
                                                   -1.63x_{322} -2.12x_2 -0.50x_5 +2.00x_{219} +0.13x_{202}
                                     +0.88x_{356}
x_{40}
                   4.5
                                                   -0.62x_{322} -2.13x_2 -0.00x_5 -1.50x_{219} + 2.63x_{202}
                                     +1.87x_{356}
x_{41}
                   3.5
                                                   -1.00x_{322} -1.00x_2 -0.50x_5 -1.50x_{219} + 2.50x_{202}
x_{42}
                                     +2.00x_{356}
                   3.0
                                     +4.13x_{356} -4.38x_{322} +0.13x_2 +1.50x_5 -2.00x_{219} +2.88x_{202}
x_{43}
                  14.5
                                     +23.50x_{356} -31.50x_{322} -2.50x_2 +5.50x_5 +1.50x_{219} -1.00x_{202}
 x_7
x_{45}
                   2.5
                                     +3.00x_{356} -3.00x_{322} +0.00x_2 +0.50x_5 -1.50x_{219} +2.50x_{202}
                   1.5
                                                   -1.63x_{322} -1.12x_2 -1.00x_5 +1.50x_{219} +0.63x_{202}
x_{46}
                                     +0.88x_{356}
                                                   -7.00x_{322} +1.00x_2 +2.00x_5 -2.00x_{219} +3.00x_{202}
                   3.0
                                     +6.00x_{356}
x_{47}
                                                   -1.00x_{322} -1.00x_2 -0.50x_5 -1.50x_{219} + 2.50x_{202}
                   3.5
                                     +2.00x_{356}
x_{48}
                   2.0
                                     +0.00x_{356}
                                                   -0.00x_{322} +0.00x_2 -1.00x_5 -2.00x_{219} +3.00x_{202}
x_{10}
                                                   -0.00x_{322} +0.00x_2 +0.00x_5 -0.00x_{219} +1.00x_{202}
                   1.0
x_{50}
                                     +0.00x_{356}
                   2.5
                                     +3.00x_{356}
                                                  -3.00x_{322} +0.00x_2 +0.50x_5 -1.50x_{219} +2.50x_{202}
x_{51}
                   4.5
                                     +3.00x_{356} -2.00x_{322} -2.00x_2 -0.50x_5 -0.50x_{219} +1.50x_{202}
x_{52}
x_{53}
                   3.5
                                     +5.88 x_{356} -7.63x_{322} -0.12x_2 +1.00x_5 -0.50x_{219} +2.63x_{202}
                   3.0
                                     +6.00x_{356} -6.00x_{322} +0.00x_2 +2.00x_5 -2.00x_{219} +2.00x_{202}
x_{54}
                   3.0
                                     -9.13x_{356} + 13.38x_{322} - 7.13x_2 - 5.50x_5 + 3.00x_{219} - 1.88x_{202}
x_{22}
                                     -5.00x_{356} +9.00x_{322} -6.00x_2 -4.50x_5 +2.50x_{219} -1.50x_{202}
                   4.5
x_{56}
            6.999999999999
                                     -22.00x_{356} + 33.00x_{322} - 17.00x_2 - 14.00x_5 + 6.00x_{219} - 5.00x_{202}
x_{57}
                                     -14.13x_{356} + 22.38x_{322} - 12.13x_2 - 10.00x_5 + 4.50x_{219} - 3.38x_{202}
            6.499999999999
x_{58}
            6.49999999999
                                     -25.00x_{356} + 37.00x_{322} - 18.00x_2 - 14.50x_5 + 6.50x_{219} - 5.50x_{202}
x_{59}
                   4.5
                                     -7.00x_{356} +12.00x_{322} -7.00x_2 -4.50x_5 +2.50x_{219} -1.50x_{202}
x_{60}
x_{108}
                   4.0
                                     +1.25x_{356} +2.25x_{322} -3.75x_2 -1.00x_5 +0.00x_{219} -0.25x_{202}
                   5.0
                                      -7.88x_{356} +13.63x_{322} -8.88x_2 -6.50x_5 +3.00x_{219} -2.13x_{202}
x_{62}
            9.49999999999
                                     -24.00x_{356} + 37.00x_{322} - 20.00x_2 - 15.50x_5 + 7.50x_{219} - 5.50x_{202}
x_{63}
            7.99999999999
                                     -21.13x_{356} + 32.38x_{322} - 17.13x_2 - 13.50x_5 + 6.00x_{219} - 4.88x_{202}
x_{64}
```

5.00~

Forming the dual dictionary: The Final Dual Dictionary is:

0000000

```
5.99999999999
                                                 -11.25x_{356} + 9.75x_{322} - 11.25x_2 - 5.00x_5 + 5.00x_{382} - 4.75x_{202}
x_{55}
           3.88378218474e - 12
                                                  +5.88x_{356} -3.63x_{322} +2.88x_2 +1.50x_5 -2.00x_{382} +2.13x_{202}
x_{44}
                         3.0
                                                  -2.00x_{356} +1.00x_{322} -1.00x_2 -1.00x_5 +1.00x_{382} -1.00x_{202}
 x_1
                                                 +20.38x_{356} - 24.13x_{322} + 14.38x_2 - 4.50x_5 - 4.00x_{382} + 4.63x_{202}
x_{12}
                        32.0
                                                  +1.88x_{356} -2.63x_{322} -0.12x_2 +0.50x_5 -0.00x_{382}
 x_3
                         1.0
                                                                                                                                       +0.13x_{202}
 x_4
                                                  +2.88x_{356} -2.63x_{322} +1.88x_2 +0.50x_5 -1.00x_{382} +1.13x_{202}
                         4.0
                                                  +0.88x_{356} +2.37x_{322} -2.12x_2 -1.50x_5 -1.00x_{382} +1.13x_{202}
                         3.0
x_{13}
                3.99999999999
                                                  -9.00x_{356} +11.00x_{322} -8.00x_2 -5.00x_5 +3.00x_{382} -3.00x_{202}
x_{229}
                         3.0
                                                  -0.00x_{356} +2.00x_{322} -3.00x_2 -1.00x_5 +0.00x_{382} -0.00x_{202}
x_{20}
                9.9999999998
                                                 -25.00x_{356} + 21.00x_{322} - 21.00x_2 - 11.00x_5 + 9.00x_{382} - 8.00x_{202}
x_{16}
                                                  +5.00x_{356} -8.00x_{322} -0.00x_2 +1.00x_5 +1.00x_{382} -0.00x_{202}
                         3.0
x_{17}
                                                  +0.63x_{356} +4.12x_{322} +1.63x_2 -1.50x_5 -3.00x_{382} +4.38x_{202}
x_{18}
                         1.0
x_{114}
                         4.0
                                                  -4.00x_{356} +5.00x_{322} -6.00x_2 -2.00x_5 +2.00x_{382} -2.00x_{202}
                         6.0
                                                  -5.88x_{356} +7.63x_{322} -7.88x_2 -3.50x_5 +2.00x_{382} -2.13x_{202}
x_{19}
                                                 -33.25x_{356} + 21.75x_{322} - 31.25x_2 - 14.00x_5 + 16.00x_{382} - 14.75x_{202} + 16.00x_{202} + 16.00x_{202
                        16.0
x_{21}
                                                 -42.13x_{356} + 33.38x_{322} - 33.13x_2 - 16.50x_5 + 16.00x_{382} - 15.88x_{202}
                        14.0
x_{15}
                        16.0
                                                 -37.13x_{356} + 25.38x_{322} - 33.13x_2 - 15.50x_5 + 17.00x_{382} - 15.88x_{202}
x_{23}
                6.99999999999
                                                  -6.63x_{356} +1.88x_{322} -9.63x_2 -3.50x_5 +5.00x_{382} -3.38x_{202}
x_{24}
                        13.0
                                                 -28.50x_{356} + 17.50x_{322} - 26.50x_2 - 12.00x_5 + 14.00x_{382} - 12.50x_{202}
x_{25}
                        12.0
                                                 -27.63x_{356} + 17.88x_{322} - 24.63x_2 - 11.50x_5 + 13.00x_{382} - 11.38x_{202}
x_{26}
                        16.0
                                                 -33.25x_{356} + 21.75x_{322} - 31.25x_2 - 14.00x_5 + 16.00x_{382} - 14.75x_{202}
x_{27}
                        13.0
                                                 -20.00x_{356} + 14.00x_{322} - 22.00x_2 - 10.00x_5 + 10.00x_{382} - 9.00x_{202}
x_{28}
                                                  +2.75x_{356} -0.25x_{322} -1.25x_2 +0.00x_5 -1.00x_{382} +1.25x_{202}
                         3.0
x_{29}
                8.99999999998
                                                 -21.00x_{356} + 18.00x_{322} - 18.00x_2 - 9.00x_5 + 8.00x_{382}
x_{30}
 x_6
           1.65079061532e - 12
                                                  +0.88x_{356} +0.37x_{322} +1.88x_2 +0.50x_5 -1.00x_{382} +1.13x_{202}
                         5.0
                                                  +8.63x_{356} -7.88x_{322} -0.37x_2 +1.50x_5 -1.00x_{382} +2.38x_{202}
x_{31}
                1.00000000001
                                                 +12.13x_{356} -4.38x_{322} +6.13x_2 +1.50x_5 -6.00x_{382} +6.88x_{202}
x_{34}
                                                 -15.50x_{356} + 15.50x_{322} - 12.50x_2 - 7.00x_5 + 5.00x_{382}
x_{73}
                5.9999999999
                                                                                                                                        -5.50x_{202}
                                                  -2.63x_{356} -2.12x_{322} -6.63x_2 -1.50x_5 +4.00x_{382} -2.38x_{202}
                4.99999999999
x_{33}
                                                  +6.63x_{356} -6.88x_{322} +0.63x_2 +0.50x_5 -1.00x_{382} +3.38x_{202}
                         3.0
x_{36}
           3.28448379605e - 12
                                                  +1.75x_{356} +0.75x_{322} +1.75x_2 +0.00x_5 -2.00x_{382} +3.25x_{202}
x_{37}
           3.27726734639e - 12
                                                  +1.75x_{356} +0.75x_{322} +1.75x_2 +0.00x_5 -2.00x_{382} +3.25x_{202}
x_{38}
                                                                    -5.00x_{322} +3.00x_2 +2.00x_5 -2.00x_{382} +2.00x_{202}
                         1.0
                                                  +7.00x_{356}
x_{39}
                3.99999999999
                                                                    -3.12x_{322} -5.63x_2 -0.50x_5 +4.00x_{382} -2.38x_{202}
                                                  -2.63x_{356}
x_{40}
                3.00000000001
                                                  +4.50x_{356} +0.50x_{322} +0.50x_2 +0.00x_5 -3.00x_{382} +4.50x_{202}
x_{41}
                                                  +4.63x_{356} +0.12x_{322} +1.63x_2 -0.50x_5 -3.00x_{382}
                2.00000000001
                                                                                                                                       +4.38x_{202}
x_{42}
                1.00000000001
                                                  +7.63x_{356} -2.88x_{322} +3.63x_2 +1.50x_5 -4.00x_{382} +5.38x_{202}
x_{43}
                                                 +20.87x_{356} - 32.62x_{322} - 5.13x_2 + 5.50x_5 + 3.00x_{382}
 x_7
                        16.0
                                                                                                                                        -2.88x_{202}
                                                  +5.63x_{356} -1.88x_{322} +2.63x_2 +0.50x_5 -3.00x_{382} +4.38x_{202}
x_{45}
                1.00000000001
x_{46}
                                                                    -2.75x_{322} -3.75x_2 -1.00x_5 +3.00x_{382}
                         3.0
                                                  -1.75x_{356}
                                                                                                                                        -1.25x_{202}
                1.00000000001
                                                                    -5.50x_{322} +4.50x_2 +2.00x_5 -4.00x_{382} +5.50x_{202}
                                                  +9.50x_{356}
x_{47}
                2.00000000001
                                                                    +0.12x_{322} +1.63x_2 -0.50x_5 -3.00x_{382} +4.38x_{202}
                                                  +4.63x_{356}
x_{48}
                                                                    +1.50x_{322} +3.50x_2 -1.00x_5 -4.00x_{382} +5.50x_{202}
           6.59383658785e - 12
                                                  +3.50x_{356}
x_{10}
                                                                    -0.00x_{322} +0.00x_2 +0.00x_5 -0.00x_{382} +1.00x_{202}
x_{50}
                         1.0
                                                  +0.00x_{356}
                1.00000000001
                                                  +5.63x_{356} -1.88x_{322} +2.63x_2 +0.50x_5 -3.00x_{382} +4.38x_{202}
x_{51}
                                                  +3.88x_{356} -1.63x_{322} -1.12x_2 -0.50x_5 -1.00x_{382} +2.13x_{202}
                         4.0
x_{52}
                                                  +6.7520_{56} -7.25x_{322} +0.75x_2 +1.00x_5 -1.00x_{382} +3.25x_{202}
x_{53}
                         3.0
                1.00000000001
                                                  +9.50x_{356} -4.50x_{322} +3.50x_2 +2.00x_5 -4.00x_{382} +4.50x_{202}
x_{54}
                5.99999999999
                                                 -14.38x_{356} + 11.13x_{322} - 12.38x_2 - 5.50x_5 + 6.00x_{382} - 5.63x_{202}
x_{22}
                                                  -9.38x_{356} +7.13x_{322} -10.38x_2 -4.50x_5 +5.00x_{382} -4.63x_{202}
                6.999999999999
x_{56}
                                                 -32.50x_{356} + 28.50x_{322} - 27.50x_2 - 14.00x_5 + 12.00x_{382} - 12.50x_{202}
                        13.0
x_{57}
                                                 -22.00x_{356} + 19.00x_{322} - 20.00x_2 - 10.00x_5 + 9.00x_{382} - 9.00x_{202}
                        11.0
x_{58}
                                                 -36.38x_{356} + 32.13x_{322} - 29.38x_2 - 14.50x_5 + 13.00x_{382} - 13.63x_{202}
                        13.0
x_{59}
                6.99999999999
                                                 -11.38x_{356} + 10.13x_{322} - 11.38x_2 - 4.50x_5 + 5.00x_{382} - 4.63x_{202}
x_{60}
x_{108}
                         4.0
                                                  +1.25x_{356} +2.25x_{322} -3.75x_2 -1.00x_5 +0.00x_{382} -0.25x_{202}
                7.99999999999
                                                 -13.13x_{356} + 11.38x_{322} - 14.13x_2 - 6.50x_5 + 6.00x_{382} - 5.88x_{202}
x_{62}
                                                 -37.13x_{356} + 31.38x_{322} - 33.13x_2 - 15.50x_5 + 15.00x_{382} - 14.88x_{202}
                        17.0
x_{63}
                                                 -31.63x_{356} + 27.88x_{322} - 27.63x_2 - 13.50x_5 + 12.00x_{382} - 12.38x_{202}
x_{64}
                        14.0
```

11 25~

5.00~

Final answer: 25.000000 Done. Added cuts