

## Initial Dictionary

|          |       |            |             |             |             |            |             |            |
|----------|-------|------------|-------------|-------------|-------------|------------|-------------|------------|
| $x_8$    | 16.0  | $-5.00x_1$ | $-1.00x_2$  | $-6.00x_3$  | $+6.00x_4$  | $+3.00x_5$ | $-9.00x_6$  | $+2.00x_7$ |
| $x_9$    | 59.0  | $-8.00x_1$ | $-6.00x_2$  | $+3.00x_3$  | $+10.00x_4$ | $+6.00x_5$ | $+7.00x_6$  | $-9.00x_7$ |
| $x_{10}$ | -19.0 | $+3.00x_1$ |             | $-10.00x_3$ | $-9.00x_4$  | $-1.00x_5$ |             | $+9.00x_7$ |
| $x_{11}$ | 18.0  | $-5.00x_1$ | $+7.00x_2$  | $-4.00x_3$  | $-6.00x_4$  | $-5.00x_5$ | $+4.00x_6$  | $-8.00x_7$ |
| $x_{12}$ | 59.0  | $-7.00x_1$ | $-10.00x_2$ | $+1.00x_3$  | $-3.00x_4$  | $-7.00x_5$ | $+10.00x_6$ | $-5.00x_7$ |
| $x_{13}$ | 32.0  | $-9.00x_1$ | $-2.00x_2$  | $-1.00x_3$  | $+8.00x_4$  | $-6.00x_5$ | $-2.00x_6$  | $-2.00x_7$ |
| $x_{14}$ | 42.0  | $-9.00x_1$ | $-5.00x_2$  | $+7.00x_3$  | $+3.00x_4$  | $-7.00x_5$ | $-6.00x_6$  | $-5.00x_7$ |
| $z$      | 0.0   | $+2.00x_1$ | $-4.00x_2$  | $-2.00x_3$  | $-5.00x_4$  | $-3.00x_5$ | $-4.00x_6$  | $-5.00x_7$ |

### 0.1 Initialization Phase: Dual Problem Solving

New Objective in primal was changed to :

$$\max \sum_{j=1}^7 -x_j$$

Primal variable  $x_j$  corresponds to dual variable  $y_j$  for  $j = 1, \dots, 14$  Dual Dictionary (with objective changed is):

|       |     |             |             |                |                |                |                |                |
|-------|-----|-------------|-------------|----------------|----------------|----------------|----------------|----------------|
| $y_1$ | 1.0 | $+5.00y_8$  | $+8.00y_9$  | $-3.00y_{10}$  | $+5.00y_{11}$  | $+7.00y_{12}$  | $+9.00y_{13}$  | $+9.00y_{14}$  |
| $y_2$ | 1.0 | $+1.00y_8$  | $+6.00y_9$  |                | $-7.00y_{11}$  | $+10.00y_{12}$ | $+2.00y_{13}$  | $+5.00y_{14}$  |
| $y_3$ | 1.0 | $+6.00y_8$  | $-3.00y_9$  | $+10.00y_{10}$ | $+4.00y_{11}$  | $-1.00y_{12}$  | $+1.00y_{13}$  | $-7.00y_{14}$  |
| $y_4$ | 1.0 | $-6.00y_8$  | $-10.00y_9$ | $+9.00y_{10}$  | $+6.00y_{11}$  | $+3.00y_{12}$  | $-8.00y_{13}$  | $-3.00y_{14}$  |
| $y_5$ | 1.0 | $-3.00y_8$  | $-6.00y_9$  | $+1.00y_{10}$  | $+5.00y_{11}$  | $+7.00y_{12}$  | $+6.00y_{13}$  | $+7.00y_{14}$  |
| $y_6$ | 1.0 | $+9.00y_8$  | $-7.00y_9$  |                | $-4.00y_{11}$  | $-10.00y_{12}$ | $+2.00y_{13}$  | $+6.00y_{14}$  |
| $y_7$ | 1.0 | $-2.00y_8$  | $+9.00y_9$  | $-9.00y_{10}$  | $+8.00y_{11}$  | $+5.00y_{12}$  | $+2.00y_{13}$  | $+5.00y_{14}$  |
| $z$   | -0  | $-16.00y_8$ | $-59.00y_9$ | $+19.00y_{10}$ | $-18.00y_{11}$ | $-59.00y_{12}$ | $-32.00y_{13}$ | $-42.00y_{14}$ |

Initialization succeeded in finding final dual dictionary with 2 pivots

|          |                |             |             |            |                |                |                |                |
|----------|----------------|-------------|-------------|------------|----------------|----------------|----------------|----------------|
| $y_1$    | 0.666666666667 | $+5.67y_8$  | $+5.00y_9$  | $+0.33y_7$ | $+2.33y_{11}$  | $+5.33y_{12}$  | $+8.33y_{13}$  | $+7.33y_{14}$  |
| $y_2$    | 1.0            | $+1.00y_8$  | $+6.00y_9$  |            | $-7.00y_{11}$  | $+10.00y_{12}$ | $+2.00y_{13}$  | $+5.00y_{14}$  |
| $y_3$    | 2.111111111111 | $+3.78y_8$  | $+7.00y_9$  | $-1.11y_7$ | $+12.89y_{11}$ | $+4.56y_{12}$  | $+3.22y_{13}$  | $-1.44y_{14}$  |
| $y_4$    | 2.0            | $-8.00y_8$  | $-1.00y_9$  | $-1.00y_7$ | $+14.00y_{11}$ | $+8.00y_{12}$  | $-6.00y_{13}$  | $+2.00y_{14}$  |
| $y_5$    | 1.111111111111 | $-3.22y_8$  | $-5.00y_9$  | $-0.11y_7$ | $+5.89y_{11}$  | $+7.56y_{12}$  | $+6.22y_{13}$  | $+7.56y_{14}$  |
| $y_6$    | 1.0            | $+9.00y_8$  | $-7.00y_9$  |            | $-4.00y_{11}$  | $-10.00y_{12}$ | $+2.00y_{13}$  | $+6.00y_{14}$  |
| $y_{10}$ | 0.111111111111 | $-0.22y_8$  | $+1.00y_9$  | $-0.11y_7$ | $+0.89y_{11}$  | $+0.56y_{12}$  | $+0.22y_{13}$  | $+0.56y_{14}$  |
| $z$      | 2.111111111111 | $-20.22y_8$ | $-40.00y_9$ | $-2.11y_7$ | $-1.11y_{11}$  | $-48.44y_{12}$ | $-27.78y_{13}$ | $-31.44y_{14}$ |

Primal Dictionary is:

|          |              |            |             |             |             |            |             |               |
|----------|--------------|------------|-------------|-------------|-------------|------------|-------------|---------------|
| $x_8$    | 20.222222222 | $-5.67x_1$ | $-1.00x_2$  | $-3.78x_3$  | $+8.00x_4$  | $+3.22x_5$ | $-9.00x_6$  | $+0.22x_{10}$ |
| $x_9$    | 40.0         | $-5.00x_1$ | $-6.00x_2$  | $-7.00x_3$  | $+1.00x_4$  | $+5.00x_5$ | $+7.00x_6$  | $-1.00x_{10}$ |
| $x_7$    | 2.111111111  | $-0.33x_1$ |             | $+1.11x_3$  | $+1.00x_4$  | $+0.11x_5$ |             | $+0.11x_{10}$ |
| $x_{11}$ | 1.111111111  | $-2.33x_1$ | $+7.00x_2$  | $-12.89x_3$ | $-14.00x_4$ | $-5.89x_5$ | $+4.00x_6$  | $-0.89x_{10}$ |
| $x_{12}$ | 48.444444444 | $-5.33x_1$ | $-10.00x_2$ | $-4.56x_3$  | $-8.00x_4$  | $-7.56x_5$ | $+10.00x_6$ | $-0.56x_{10}$ |
| $x_{13}$ | 27.777777778 | $-8.33x_1$ | $-2.00x_2$  | $-3.22x_3$  | $+6.00x_4$  | $-6.22x_5$ | $-2.00x_6$  | $-0.22x_{10}$ |
| $x_{14}$ | 31.444444444 | $-7.33x_1$ | $-5.00x_2$  | $+1.44x_3$  | $-2.00x_4$  | $-7.56x_5$ | $-6.00x_6$  | $-0.56x_{10}$ |
| $z$      | -2.111111111 | $-0.67x_1$ | $-1.00x_2$  | $-2.11x_3$  | $-2.00x_4$  | $-1.11x_5$ | $-1.00x_6$  | $-0.11x_{10}$ |

Primal Dictionary with original objective is:

|          |               |            |             |             |             |            |             |               |
|----------|---------------|------------|-------------|-------------|-------------|------------|-------------|---------------|
| $x_8$    | 20.222222222  | $-5.67x_1$ | $-1.00x_2$  | $-3.78x_3$  | $+8.00x_4$  | $+3.22x_5$ | $-9.00x_6$  | $+0.22x_{10}$ |
| $x_9$    | 40.0          | $-5.00x_1$ | $-6.00x_2$  | $-7.00x_3$  | $+1.00x_4$  | $+5.00x_5$ | $+7.00x_6$  | $-1.00x_{10}$ |
| $x_7$    | 2.111111111   | $-0.33x_1$ |             | $+1.11x_3$  | $+1.00x_4$  | $+0.11x_5$ |             | $+0.11x_{10}$ |
| $x_{11}$ | 1.111111111   | $-2.33x_1$ | $+7.00x_2$  | $-12.89x_3$ | $-14.00x_4$ | $-5.89x_5$ | $+4.00x_6$  | $-0.89x_{10}$ |
| $x_{12}$ | 48.444444444  | $-5.33x_1$ | $-10.00x_2$ | $-4.56x_3$  | $-8.00x_4$  | $-7.56x_5$ | $+10.00x_6$ | $-0.56x_{10}$ |
| $x_{13}$ | 27.777777778  | $-8.33x_1$ | $-2.00x_2$  | $-3.22x_3$  | $+6.00x_4$  | $-6.22x_5$ | $-2.00x_6$  | $-0.22x_{10}$ |
| $x_{14}$ | 31.444444444  | $-7.33x_1$ | $-5.00x_2$  | $+1.44x_3$  | $-2.00x_4$  | $-7.56x_5$ | $-6.00x_6$  | $-0.56x_{10}$ |
| $z$      | -10.555555556 | $+3.67x_1$ | $-4.00x_2$  | $-7.56x_3$  | $-10.00x_4$ | $-3.56x_5$ | $-4.00x_6$  | $-0.56x_{10}$ |

$x_1$  enters and  $x_{11}$  leaves

|          |                |               |             |             |             |             |             |               |
|----------|----------------|---------------|-------------|-------------|-------------|-------------|-------------|---------------|
| $x_8$    | 17.5238095238  | $+2.43x_{11}$ | $-18.00x_2$ | $+27.52x_3$ | $+42.00x_4$ | $+17.52x_5$ | $-18.71x_6$ | $+2.38x_{10}$ |
| $x_9$    | 37.619047619   | $+2.14x_{11}$ | $-21.00x_2$ | $+20.62x_3$ | $+31.00x_4$ | $+17.62x_5$ | $-1.57x_6$  | $+0.90x_{10}$ |
| $x_7$    | 1.95238095238  | $+0.14x_{11}$ | $-1.00x_2$  | $+2.95x_3$  | $+3.00x_4$  | $+0.95x_5$  | $-0.57x_6$  | $+0.24x_{10}$ |
| $x_1$    | 0.47619047619  | $-0.43x_{11}$ | $+3.00x_2$  | $-5.52x_3$  | $-6.00x_4$  | $-2.52x_5$  | $+1.71x_6$  | $-0.38x_{10}$ |
| $x_{12}$ | 45.9047619048  | $+2.29x_{11}$ | $-26.00x_2$ | $+24.90x_3$ | $+24.00x_4$ | $+5.90x_5$  | $+0.86x_6$  | $+1.48x_{10}$ |
| $x_{13}$ | 23.8095238095  | $+3.57x_{11}$ | $-27.00x_2$ | $+42.81x_3$ | $+56.00x_4$ | $+14.81x_5$ | $-16.29x_6$ | $+2.95x_{10}$ |
| $x_{14}$ | 27.9523809524  | $+3.14x_{11}$ | $-27.00x_2$ | $+41.95x_3$ | $+42.00x_4$ | $+10.95x_5$ | $-18.57x_6$ | $+2.24x_{10}$ |
| $z$      | -8.80952380952 | $-1.57x_{11}$ | $+7.00x_2$  | $-27.81x_3$ | $-32.00x_4$ | $-12.81x_5$ | $+2.29x_6$  | $-1.95x_{10}$ |

$x_2$  enters and  $x_{13}$  leaves

|          |                |               |               |             |             |            |             |               |
|----------|----------------|---------------|---------------|-------------|-------------|------------|-------------|---------------|
| $x_8$    | 1.65079365079  | $+0.05x_{11}$ | $+0.67x_{13}$ | $-1.02x_3$  | $+4.67x_4$  | $+7.65x_5$ | $-7.86x_6$  | $+0.41x_{10}$ |
| $x_9$    | 19.1005291005  | $-0.63x_{11}$ | $+0.78x_{13}$ | $-12.68x_3$ | $-12.56x_4$ | $+6.10x_5$ | $+11.10x_6$ | $-1.39x_{10}$ |
| $x_7$    | 1.07054673721  | $+0.01x_{11}$ | $+0.04x_{13}$ | $+1.37x_3$  | $+0.93x_4$  | $+0.40x_5$ | $+0.03x_6$  | $+0.13x_{10}$ |
| $x_1$    | 3.12169312169  | $-0.03x_{11}$ | $-0.11x_{13}$ | $-0.77x_3$  | $+0.22x_4$  | $-0.88x_5$ | $-0.10x_6$  | $-0.05x_{10}$ |
| $x_{12}$ | 22.9770723104  | $-1.15x_{11}$ | $+0.96x_{13}$ | $-16.32x_3$ | $-29.93x_4$ | $-8.36x_5$ | $+16.54x_6$ | $-1.37x_{10}$ |
| $x_2$    | 0.881834215168 | $+0.13x_{11}$ | $-0.04x_{13}$ | $+1.59x_3$  | $+2.07x_4$  | $+0.55x_5$ | $-0.60x_6$  | $+0.11x_{10}$ |
| $x_{14}$ | 4.14285714286  | $-0.43x_{11}$ | $+1.00x_{13}$ | $-0.86x_3$  | $-14.00x_4$ | $-3.86x_5$ | $-2.29x_6$  | $-0.71x_{10}$ |
| $z$      | -2.63668430335 | $-0.65x_{11}$ | $-0.26x_{13}$ | $-16.71x_3$ | $-17.48x_4$ | $-8.97x_5$ | $-1.94x_6$  | $-1.19x_{10}$ |

Final Dictionary Final dictionary after first LP relaxation solve:

|          |                |  |
|----------|----------------|--|
| $x_8$    | 1.65079365079  | $+0.05x_{11} + 0.67x_{13} - 1.02x_3 + 4.67x_4 + 7.65x_5 - 7.86x_6 + 0.41x_{10}$    |
| $x_9$    | 19.1005291005  | $-0.63x_{11} + 0.78x_{13} - 12.68x_3 - 12.56x_4 + 6.10x_5 + 11.10x_6 - 1.39x_{10}$ |
| $x_7$    | 1.07054673721  | $+0.01x_{11} + 0.04x_{13} + 1.37x_3 + 0.93x_4 + 0.40x_5 + 0.03x_6 + 0.13x_{10}$    |
| $x_1$    | 3.12169312169  | $-0.03x_{11} - 0.11x_{13} - 0.77x_3 + 0.22x_4 - 0.88x_5 - 0.10x_6 - 0.05x_{10}$    |
| $x_{12}$ | 22.9770723104  | $-1.15x_{11} + 0.96x_{13} - 16.32x_3 - 29.93x_4 - 8.36x_5 + 16.54x_6 - 1.37x_{10}$ |
| $x_2$    | 0.881834215168 | $+0.13x_{11} - 0.04x_{13} + 1.59x_3 + 2.07x_4 + 0.55x_5 - 0.60x_6 + 0.11x_{10}$    |
| $x_{14}$ | 4.14285714286  | $-0.43x_{11} + 1.00x_{13} - 0.86x_3 - 14.00x_4 - 3.86x_5 - 2.29x_6 - 0.71x_{10}$   |
| $z$      | -2.63668430335 | $-0.65x_{11} - 0.26x_{13} - 16.71x_3 - 17.48x_4 - 8.97x_5 - 1.94x_6 - 1.19x_{10}$  |

After cutting plane is added

|          |                  |  |
|----------|------------------|--|
| $x_8$    | 1.65079365079    | $+0.05x_{11} + 0.67x_{13} - 1.02x_3 + 4.67x_4 + 7.65x_5 - 7.86x_6 + 0.41x_{10}$    |
| $x_9$    | 19.1005291005    | $-0.63x_{11} + 0.78x_{13} - 12.68x_3 - 12.56x_4 + 6.10x_5 + 11.10x_6 - 1.39x_{10}$ |
| $x_7$    | 1.07054673721    | $+0.01x_{11} + 0.04x_{13} + 1.37x_3 + 0.93x_4 + 0.40x_5 + 0.03x_6 + 0.13x_{10}$    |
| $x_1$    | 3.12169312169    | $-0.03x_{11} - 0.11x_{13} - 0.77x_3 + 0.22x_4 - 0.88x_5 - 0.10x_6 - 0.05x_{10}$    |
| $x_{12}$ | 22.9770723104    | $-1.15x_{11} + 0.96x_{13} - 16.32x_3 - 29.93x_4 - 8.36x_5 + 16.54x_6 - 1.37x_{10}$ |
| $x_2$    | 0.881834215168   | $+0.13x_{11} - 0.04x_{13} + 1.59x_3 + 2.07x_4 + 0.55x_5 - 0.60x_6 + 0.11x_{10}$    |
| $x_{14}$ | 4.14285714286    | $-0.43x_{11} + 1.00x_{13} - 0.86x_3 - 14.00x_4 - 3.86x_5 - 2.29x_6 - 0.71x_{10}$   |
| $x_{15}$ | -0.650793650794  | $+0.95x_{11} + 0.33x_{13} + 0.02x_3 + 0.33x_4 + 0.35x_5 + 0.86x_6 + 0.59x_{10}$    |
| $x_{16}$ | -0.100529100529  | $+0.63x_{11} + 0.22x_{13} + 0.68x_3 + 0.56x_4 + 0.90x_5 + 0.90x_6 + 0.39x_{10}$    |
| $x_{17}$ | -0.0705467372134 | $+0.99x_{11} + 0.96x_{13} + 0.63x_3 + 0.07x_4 + 0.60x_5 + 0.97x_6 + 0.87x_{10}$    |
| $x_{18}$ | -0.121693121693  | $+0.03x_{11} + 0.11x_{13} + 0.77x_3 + 0.78x_4 + 0.88x_5 + 0.10x_6 + 0.05x_{10}$    |
| $x_{19}$ | -0.977072310406  | $+0.15x_{11} + 0.04x_{13} + 0.32x_3 + 0.93x_4 + 0.36x_5 + 0.46x_6 + 0.37x_{10}$    |
| $x_{20}$ | -0.881834215168  | $+0.87x_{11} + 0.04x_{13} + 0.41x_3 + 0.93x_4 + 0.45x_5 + 0.60x_6 + 0.89x_{10}$    |
| $x_{21}$ | -0.142857142857  | $+0.43x_{11} + 0.86x_3 + 0.86x_5 + 0.29x_6 + 0.71x_{10}$                           |
| $z$      | -2.63668430335   | $-0.65x_{11} - 0.26x_{13} - 16.71x_3 - 17.48x_4 - 8.97x_5 - 1.94x_6 - 1.19x_{10}$  |

Forming the dual dictionary:

The Final Dual Dictionary is:

Final primal dictionary obtained:

|          |                 |  |
|----------|-----------------|--|
| $x_8$    | 2.75            | $-0.13x_{11} + 0.62x_{13} - 1.37x_3 + 3.63x_4 + 7.25x_5 - 8.38x_6 + 1.12x_{19}$    |
| $x_9$    | 15.3942307692   | $-0.05x_{11} + 0.92x_{13} - 11.47x_3 - 9.04x_4 + 7.45x_5 + 12.84x_6 - 3.79x_{19}$  |
| $x_7$    | 1.41346153846   | $-0.04x_{11} + 0.02x_{13} + 1.25x_3 + 0.60x_4 + 0.28x_5 - 0.13x_6 + 0.35x_{19}$    |
| $x_1$    | 2.98076923077   | $-0.01x_{11} - 0.11x_{13} - 0.72x_3 + 0.36x_4 - 0.83x_5 - 0.03x_6 - 0.14x_{19}$    |
| $x_{12}$ | 19.3365384615   | $-0.58x_{11} + 1.10x_{13} - 15.13x_3 - 26.48x_4 - 7.03x_5 + 18.25x_6 - 3.73x_{19}$ |
| $x_2$    | 1.17307692308   | $+0.09x_{11} - 0.05x_{13} + 1.49x_3 + 1.80x_4 + 0.44x_5 - 0.74x_6 + 0.30x_{19}$    |
| $x_{14}$ | 2.24038461538   | $-0.13x_{11} + 1.07x_{13} - 0.24x_3 - 12.20x_4 - 3.16x_5 - 1.39x_6 - 1.95x_{19}$   |
| $x_{15}$ | 0.913461538462  | $+0.71x_{11} + 0.27x_{13} - 0.50x_3 - 1.15x_4 - 0.22x_5 + 0.12x_6 + 1.60x_{19}$    |
| $x_{16}$ | 0.942307692308  | $+0.47x_{11} + 0.18x_{13} + 0.34x_3 - 0.43x_4 + 0.52x_5 + 0.41x_6 + 1.07x_{19}$    |
| $x_{17}$ | 2.25            | $+0.62x_{11} + 0.88x_{13} - 0.12x_3 - 2.12x_4 - 0.25x_5 - 0.13x_6 + 2.37x_{19}$    |
| $x_{18}$ | 0.0192307692308 | $+0.01x_{11} + 0.11x_{13} + 0.72x_3 + 0.64x_4 + 0.83x_5 + 0.03x_6 + 0.14x_{19}$    |
| $x_{10}$ | 2.66346153846   | $-0.42x_{11} - 0.10x_{13} - 0.87x_3 - 2.52x_4 - 0.97x_5 - 1.25x_6 + 2.73x_{19}$    |
| $x_{20}$ | 1.49038461538   | $+0.50x_{11} - 0.05x_{13} - 0.36x_3 - 1.32x_4 - 0.41x_5 - 0.51x_6 + 2.43x_{19}$    |
| $x_{21}$ | 1.75961538462   | $+0.13x_{11} - 0.07x_{13} + 0.24x_3 - 1.80x_4 + 0.16x_5 - 0.61x_6 + 1.95x_{19}$    |
| $z$      | -5.79807692308  | $-0.15x_{11} - 0.14x_{13} - 15.68x_3 - 14.49x_4 - 7.82x_5 - 0.45x_6 - 3.24x_{19}$  |

After cutting plane is added

|          |                  |  |
|----------|------------------|--|
| $x_8$    | 2.75             | $-0.13x_{11} + 0.62x_{13} - 1.37x_3 + 3.63x_4 + 7.25x_5 - 8.38x_6 + 1.12x_{19}$    |
| $x_9$    | 15.3942307692    | $-0.05x_{11} + 0.92x_{13} - 11.47x_3 - 9.04x_4 + 7.45x_5 + 12.84x_6 - 3.79x_{19}$  |
| $x_7$    | 1.41346153846    | $-0.04x_{11} + 0.02x_{13} + 1.25x_3 + 0.60x_4 + 0.28x_5 - 0.13x_6 + 0.35x_{19}$    |
| $x_1$    | 2.98076923077    | $-0.01x_{11} - 0.11x_{13} - 0.72x_3 + 0.36x_4 - 0.83x_5 - 0.03x_6 - 0.14x_{19}$    |
| $x_{12}$ | 19.3365384615    | $-0.58x_{11} + 1.10x_{13} - 15.13x_3 - 26.48x_4 - 7.03x_5 + 18.25x_6 - 3.73x_{19}$ |
| $x_2$    | 1.17307692308    | $+0.09x_{11} - 0.05x_{13} + 1.49x_3 + 1.80x_4 + 0.44x_5 - 0.74x_6 + 0.30x_{19}$    |
| $x_{14}$ | 2.24038461538    | $-0.13x_{11} + 1.07x_{13} - 0.24x_3 - 12.20x_4 - 3.16x_5 - 1.39x_6 - 1.95x_{19}$   |
| $x_{15}$ | 0.913461538462   | $+0.71x_{11} + 0.27x_{13} - 0.50x_3 - 1.15x_4 - 0.22x_5 + 0.12x_6 + 1.60x_{19}$    |
| $x_{16}$ | 0.942307692308   | $+0.47x_{11} + 0.18x_{13} + 0.34x_3 - 0.43x_4 + 0.52x_5 + 0.41x_6 + 1.07x_{19}$    |
| $x_{17}$ | 2.25             | $+0.62x_{11} + 0.88x_{13} - 0.12x_3 - 2.12x_4 - 0.25x_5 - 0.13x_6 + 2.37x_{19}$    |
| $x_{18}$ | 0.0192307692308  | $+0.01x_{11} + 0.11x_{13} + 0.72x_3 + 0.64x_4 + 0.83x_5 + 0.03x_6 + 0.14x_{19}$    |
| $x_{10}$ | 2.66346153846    | $-0.42x_{11} - 0.10x_{13} - 0.87x_3 - 2.52x_4 - 0.97x_5 - 1.25x_6 + 2.73x_{19}$    |
| $x_{20}$ | 1.49038461538    | $+0.50x_{11} - 0.05x_{13} - 0.36x_3 - 1.32x_4 - 0.41x_5 - 0.51x_6 + 2.43x_{19}$    |
| $x_{21}$ | 1.75961538462    | $+0.13x_{11} - 0.07x_{13} + 0.24x_3 - 1.80x_4 + 0.16x_5 - 0.61x_6 + 1.95x_{19}$    |
| $x_{22}$ | -0.75            | $+0.13x_{11} + 0.38x_{13} + 0.37x_3 + 0.37x_4 + 0.75x_5 + 0.38x_6 + 0.88x_{19}$    |
| $x_{23}$ | -0.394230769231  | $+0.05x_{11} + 0.08x_{13} + 0.47x_3 + 0.04x_4 + 0.55x_5 + 0.16x_6 + 0.79x_{19}$    |
| $x_{24}$ | -0.413461538462  | $+0.04x_{11} + 0.98x_{13} + 0.75x_3 + 0.40x_4 + 0.72x_5 + 0.13x_6 + 0.65x_{19}$    |
| $x_{25}$ | -0.980769230769  | $+0.01x_{11} + 0.11x_{13} + 0.72x_3 + 0.64x_4 + 0.83x_5 + 0.03x_6 + 0.14x_{19}$    |
| $x_{26}$ | -0.336538461538  | $+0.58x_{11} + 0.90x_{13} + 0.13x_3 + 0.48x_4 + 0.03x_5 + 0.75x_6 + 0.73x_{19}$    |
| $x_{27}$ | -0.173076923077  | $+0.91x_{11} + 0.05x_{13} + 0.51x_3 + 0.20x_4 + 0.56x_5 + 0.74x_6 + 0.70x_{19}$    |
| $x_{28}$ | -0.240384615385  | $+0.13x_{11} + 0.93x_{13} + 0.24x_3 + 0.20x_4 + 0.16x_5 + 0.39x_6 + 0.95x_{19}$    |
| $x_{29}$ | -0.913461538462  | $+0.29x_{11} + 0.73x_{13} + 0.50x_3 + 0.15x_4 + 0.22x_5 + 0.88x_6 + 0.40x_{19}$    |
| $x_{30}$ | -0.942307692308  | $+0.53x_{11} + 0.82x_{13} + 0.66x_3 + 0.43x_4 + 0.48x_5 + 0.59x_6 + 0.93x_{19}$    |
| $x_{31}$ | -0.25            | $+0.38x_{11} + 0.12x_{13} + 0.12x_3 + 0.12x_4 + 0.25x_5 + 0.13x_6 + 0.63x_{19}$    |
| $x_{32}$ | -0.0192307692308 | $+0.99x_{11} + 0.89x_{13} + 0.28x_3 + 0.36x_4 + 0.17x_5 + 0.97x_6 + 0.86x_{19}$    |
| $x_{33}$ | -0.663461538462  | $+0.42x_{11} + 0.10x_{13} + 0.87x_3 + 0.52x_4 + 0.97x_5 + 0.25x_6 + 0.27x_{19}$    |
| $x_{34}$ | -0.490384615385  | $+0.50x_{11} + 0.05x_{13} + 0.36x_3 + 0.32x_4 + 0.41x_5 + 0.51x_6 + 0.57x_{19}$    |
| $x_{35}$ | -0.759615384615  | $+0.87x_{11} + 0.07x_{13} + 0.76x_3 + 0.80x_4 + 0.84x_5 + 0.61x_6 + 0.05x_{19}$    |
| $z$      | -5.79807692308   | $-0.15x_{11} - 0.14x_{13} - 15.68x_3 - 14.49x_4 - 7.82x_5 - 0.45x_6 - 3.24x_{19}$  |

Forming the dual dictionary:

The Final Dual Dictionary is:

Final primal dictionary obtained:

|          |                  |               |                |             |             |             |             |               |
|----------|------------------|---------------|----------------|-------------|-------------|-------------|-------------|---------------|
| $x_8$    | 8.52631578947    | $-0.21x_{35}$ | $+6.05x_{25}$  | $-5.58x_3$  | $-0.11x_4$  | $+2.42x_5$  | $-8.42x_6$  | $+0.26x_{19}$ |
| $x_9$    | 23.8947368421    | $-0.16x_{35}$ | $+8.79x_{25}$  | $-17.68x_3$ | $-14.58x_4$ | $+0.32x_5$  | $+12.68x_6$ | $-5.05x_{19}$ |
| $x_7$    | 1.63157894737    | $-0.05x_{35}$ | $+0.26x_{25}$  | $+1.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $-0.11x_6$  | $+0.32x_{19}$ |
| $x_1$    | 2.0              |               | $-1.00x_{25}$  |             | $+1.00x_4$  |             |             |               |
| $x_{12}$ | 29.4736842105    | $-0.79x_{35}$ | $+10.95x_{25}$ | $-22.42x_3$ | $-32.89x_4$ | $-15.42x_5$ | $+18.42x_6$ | $-5.26x_{19}$ |
| $x_2$    | 0.736842105263   | $+0.11x_{35}$ | $-0.53x_{25}$  | $+1.79x_3$  | $+2.05x_4$  | $+0.79x_5$  | $-0.79x_6$  | $+0.37x_{19}$ |
| $x_{14}$ | 12.1578947368    | $-0.26x_{35}$ | $+10.32x_{25}$ | $-7.47x_3$  | $-18.63x_4$ | $-11.47x_5$ | $-1.53x_6$  | $-3.42x_{19}$ |
| $x_{15}$ | 3.52631578947    | $+0.79x_{35}$ | $+2.05x_{25}$  | $-2.58x_3$  | $-3.11x_4$  | $-2.58x_5$  | $-0.42x_6$  | $+1.26x_{19}$ |
| $x_{16}$ | 2.68421052632    | $+0.53x_{35}$ | $+1.37x_{25}$  | $-1.05x_3$  | $-1.74x_4$  | $-1.05x_5$  | $+0.05x_6$  | $+0.84x_{19}$ |
| $x_{17}$ | 10.4210526316    | $+0.63x_{35}$ | $+7.84x_{25}$  | $-6.26x_3$  | $-7.68x_4$  | $-7.26x_5$  | $-0.74x_6$  | $+1.21x_{19}$ |
| $x_{18}$ | 1.0              |               | $+1.00x_{25}$  |             |             |             |             |               |
| $x_{10}$ | 1.68421052632    | $-0.47x_{35}$ | $-0.63x_{25}$  | $-0.05x_3$  | $-1.74x_4$  | $-0.05x_5$  | $-0.95x_6$  | $+2.84x_{19}$ |
| $x_{20}$ | 1.05263157895    | $+0.58x_{35}$ | $-0.89x_{25}$  | $-0.16x_3$  | $-1.21x_4$  | $-0.16x_5$  | $-0.84x_6$  | $+2.53x_{19}$ |
| $x_{21}$ | 1.10526315789    | $+0.16x_{35}$ | $-0.79x_{25}$  | $+0.68x_3$  | $-1.42x_4$  | $+0.68x_5$  | $-0.68x_6$  | $+2.05x_{19}$ |
| $x_{13}$ | 9.26315789474    | $-0.11x_{35}$ | $+9.53x_{25}$  | $-6.79x_3$  | $-6.05x_4$  | $-7.79x_5$  | $-0.21x_6$  | $-1.37x_{19}$ |
| $x_{22}$ | 2.73684210526    | $+0.11x_{35}$ | $+3.47x_{25}$  | $-2.21x_3$  | $-1.95x_4$  | $-2.21x_5$  | $+0.21x_6$  | $+0.37x_{19}$ |
| $x_{24}$ | 8.63157894737    | $-0.05x_{35}$ | $+9.26x_{25}$  | $-5.89x_3$  | $-5.53x_4$  | $-6.89x_5$  | $-0.11x_6$  | $-0.68x_{19}$ |
| $x_{23}$ | 0.368421052632   | $+0.05x_{35}$ | $+0.74x_{25}$  | $-0.11x_3$  | $-0.47x_4$  | $-0.11x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{26}$ | 8.05263157895    | $+0.58x_{35}$ | $+8.11x_{25}$  | $-6.16x_3$  | $-5.21x_4$  | $-7.16x_5$  | $+0.16x_6$  | $-0.47x_{19}$ |
| $x_{27}$ | 0.368421052632   | $+1.05x_{35}$ | $-0.26x_{25}$  | $-0.11x_3$  | $-0.47x_4$  | $-0.11x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{28}$ | 8.36842105263    | $+0.05x_{35}$ | $+8.74x_{25}$  | $-6.11x_3$  | $-5.47x_4$  | $-7.11x_5$  | $+0.11x_6$  | $-0.32x_{19}$ |
| $x_{29}$ | 5.84210526316    | $+0.26x_{35}$ | $+6.68x_{25}$  | $-4.53x_3$  | $-4.37x_4$  | $-5.53x_5$  | $+0.53x_6$  | $-0.58x_{19}$ |
| $x_{30}$ | 6.68421052632    | $+0.53x_{35}$ | $+7.37x_{25}$  | $-5.05x_3$  | $-4.74x_4$  | $-6.05x_5$  | $+0.05x_6$  | $-0.16x_{19}$ |
| $x_{31}$ | 0.947368421053   | $+0.42x_{35}$ | $+0.89x_{25}$  | $-0.84x_3$  | $-0.79x_4$  | $-0.84x_5$  | $-0.16x_6$  | $+0.47x_{19}$ |
| $x_{32}$ | 8.36842105263    | $+1.05x_{35}$ | $+7.74x_{25}$  | $-6.11x_3$  | $-5.47x_4$  | $-7.11x_5$  | $+0.11x_6$  | $-0.32x_{19}$ |
| $x_{33}$ | 0.315789473684   | $+0.47x_{35}$ | $+0.63x_{25}$  | $+0.05x_3$  | $-0.26x_4$  | $+0.05x_5$  | $-0.05x_6$  | $+0.16x_{19}$ |
| $x_{34}$ | 0.0526315789474  | $+0.58x_{35}$ | $+0.11x_{25}$  | $-0.16x_3$  | $-0.21x_4$  | $-0.16x_5$  | $+0.16x_6$  | $+0.53x_{19}$ |
| $x_{11}$ | 0.105263157895   | $+1.16x_{35}$ | $-0.79x_{25}$  | $-0.32x_3$  | $-0.42x_4$  | $-0.32x_5$  | $-0.68x_6$  | $+0.05x_{19}$ |
| $z$      | $-7.10526315789$ | $-0.16x_{35}$ | $-1.21x_{25}$  | $-14.68x_3$ | $-13.58x_4$ | $-6.68x_5$  | $-0.32x_6$  | $-3.05x_{19}$ |

After cutting plane is added

|          |                    |               |                |             |             |             |             |               |
|----------|--------------------|---------------|----------------|-------------|-------------|-------------|-------------|---------------|
| $x_8$    | 8.52631578947      | $-0.21x_{35}$ | $+6.05x_{25}$  | $-5.58x_3$  | $-0.11x_4$  | $+2.42x_5$  | $-8.42x_6$  | $+0.26x_{19}$ |
| $x_9$    | 23.8947368421      | $-0.16x_{35}$ | $+8.79x_{25}$  | $-17.68x_3$ | $-14.58x_4$ | $+0.32x_5$  | $+12.68x_6$ | $-5.05x_{19}$ |
| $x_7$    | 1.63157894737      | $-0.05x_{35}$ | $+0.26x_{25}$  | $+1.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $-0.11x_6$  | $+0.32x_{19}$ |
| $x_1$    | 2.0                |               | $-1.00x_{25}$  |             | $+1.00x_4$  |             |             |               |
| $x_{12}$ | 29.4736842105      | $-0.79x_{35}$ | $+10.95x_{25}$ | $-22.42x_3$ | $-32.89x_4$ | $-15.42x_5$ | $+18.42x_6$ | $-5.26x_{19}$ |
| $x_2$    | 0.736842105263     | $+0.11x_{35}$ | $-0.53x_{25}$  | $+1.79x_3$  | $+2.05x_4$  | $+0.79x_5$  | $-0.79x_6$  | $+0.37x_{19}$ |
| $x_{14}$ | 12.1578947368      | $-0.26x_{35}$ | $+10.32x_{25}$ | $-7.47x_3$  | $-18.63x_4$ | $-11.47x_5$ | $-1.53x_6$  | $-3.42x_{19}$ |
| $x_{15}$ | 3.52631578947      | $+0.79x_{35}$ | $+2.05x_{25}$  | $-2.58x_3$  | $-3.11x_4$  | $-2.58x_5$  | $-0.42x_6$  | $+1.26x_{19}$ |
| $x_{16}$ | 2.68421052632      | $+0.53x_{35}$ | $+1.37x_{25}$  | $-1.05x_3$  | $-1.74x_4$  | $-1.05x_5$  | $+0.05x_6$  | $+0.84x_{19}$ |
| $x_{17}$ | 10.4210526316      | $+0.63x_{35}$ | $+7.84x_{25}$  | $-6.26x_3$  | $-7.68x_4$  | $-7.26x_5$  | $-0.74x_6$  | $+1.21x_{19}$ |
| $x_{18}$ | 1.0                |               | $+1.00x_{25}$  |             |             |             |             |               |
| $x_{10}$ | 1.68421052632      | $-0.47x_{35}$ | $-0.63x_{25}$  | $-0.05x_3$  | $-1.74x_4$  | $-0.05x_5$  | $-0.95x_6$  | $+2.84x_{19}$ |
| $x_{20}$ | 1.05263157895      | $+0.58x_{35}$ | $-0.89x_{25}$  | $-0.16x_3$  | $-1.21x_4$  | $-0.16x_5$  | $-0.84x_6$  | $+2.53x_{19}$ |
| $x_{21}$ | 1.10526315789      | $+0.16x_{35}$ | $-0.79x_{25}$  | $+0.68x_3$  | $-1.42x_4$  | $+0.68x_5$  | $-0.68x_6$  | $+2.05x_{19}$ |
| $x_{13}$ | 9.26315789474      | $-0.11x_{35}$ | $+9.53x_{25}$  | $-6.79x_3$  | $-6.05x_4$  | $-7.79x_5$  | $-0.21x_6$  | $-1.37x_{19}$ |
| $x_{22}$ | 2.73684210526      | $+0.11x_{35}$ | $+3.47x_{25}$  | $-2.21x_3$  | $-1.95x_4$  | $-2.21x_5$  | $+0.21x_6$  | $+0.37x_{19}$ |
| $x_{24}$ | 8.63157894737      | $-0.05x_{35}$ | $+9.26x_{25}$  | $-5.89x_3$  | $-5.53x_4$  | $-6.89x_5$  | $-0.11x_6$  | $-0.68x_{19}$ |
| $x_{23}$ | 0.368421052632     | $+0.05x_{35}$ | $+0.74x_{25}$  | $-0.11x_3$  | $-0.47x_4$  | $-0.11x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{26}$ | 8.05263157895      | $+0.58x_{35}$ | $+8.11x_{25}$  | $-6.16x_3$  | $-5.21x_4$  | $-7.16x_5$  | $+0.16x_6$  | $-0.47x_{19}$ |
| $x_{27}$ | 0.368421052632     | $+1.05x_{35}$ | $-0.26x_{25}$  | $-0.11x_3$  | $-0.47x_4$  | $-0.11x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{28}$ | 8.36842105263      | $+0.05x_{35}$ | $+8.74x_{25}$  | $-6.11x_3$  | $-5.47x_4$  | $-7.11x_5$  | $+0.11x_6$  | $-0.32x_{19}$ |
| $x_{29}$ | 5.84210526316      | $+0.26x_{35}$ | $+6.68x_{25}$  | $-4.53x_3$  | $-4.37x_4$  | $-5.53x_5$  | $+0.53x_6$  | $-0.58x_{19}$ |
| $x_{30}$ | 6.68421052632      | $+0.53x_{35}$ | $+7.37x_{25}$  | $-5.05x_3$  | $-4.74x_4$  | $-6.05x_5$  | $+0.05x_6$  | $-0.16x_{19}$ |
| $x_{31}$ | 0.947368421053     | $+0.42x_{35}$ | $+0.89x_{25}$  | $-0.84x_3$  | $-0.79x_4$  | $-0.84x_5$  | $-0.16x_6$  | $+0.47x_{19}$ |
| $x_{32}$ | 8.36842105263      | $+1.05x_{35}$ | $+7.74x_{25}$  | $-6.11x_3$  | $-5.47x_4$  | $-7.11x_5$  | $+0.11x_6$  | $-0.32x_{19}$ |
| $x_{33}$ | 0.315789473684     | $+0.47x_{35}$ | $+0.63x_{25}$  | $+0.05x_3$  | $-0.26x_4$  | $+0.05x_5$  | $-0.05x_6$  | $+0.16x_{19}$ |
| $x_{34}$ | 0.0526315789474    | $+0.58x_{35}$ | $+0.11x_{25}$  | $-0.16x_3$  | $-0.21x_4$  | $-0.16x_5$  | $+0.16x_6$  | $+0.53x_{19}$ |
| $x_{11}$ | 0.105263157895     | $+1.16x_{35}$ | $-0.79x_{25}$  | $-0.32x_3$  | $-0.42x_4$  | $-0.32x_5$  | $-0.68x_6$  | $+0.05x_{19}$ |
| $x_{36}$ | $-0.526315789474$  | $+0.21x_{35}$ | $+0.95x_{25}$  | $+0.58x_3$  | $+0.11x_4$  | $+0.58x_5$  | $+0.42x_6$  | $+0.74x_{19}$ |
| $x_{37}$ | $-0.894736842105$  | $+0.16x_{35}$ | $+0.21x_{25}$  | $+0.68x_3$  | $+0.58x_4$  | $+0.68x_5$  | $+0.32x_6$  | $+0.05x_{19}$ |
| $x_{38}$ | $-0.631578947368$  | $+0.05x_{35}$ | $+0.74x_{25}$  | $+0.89x_3$  | $+0.53x_4$  | $+0.89x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{39}$ | $-0.473684210526$  | $+0.79x_{35}$ | $+0.05x_{25}$  | $+0.42x_3$  | $+0.89x_4$  | $+0.42x_5$  | $+0.58x_6$  | $+0.26x_{19}$ |
| $x_{40}$ | $-0.736842105263$  | $+0.89x_{35}$ | $+0.53x_{25}$  | $+0.21x_3$  | $+0.95x_4$  | $+0.21x_5$  | $+0.79x_6$  | $+0.63x_{19}$ |
| $x_{41}$ | $-0.157894736842$  | $+0.26x_{35}$ | $+0.68x_{25}$  | $+0.47x_3$  | $+0.63x_4$  | $+0.47x_5$  | $+0.53x_6$  | $+0.42x_{19}$ |
| $x_{42}$ | $-0.526315789474$  | $+0.21x_{35}$ | $+0.95x_{25}$  | $+0.58x_3$  | $+0.11x_4$  | $+0.58x_5$  | $+0.42x_6$  | $+0.74x_{19}$ |
| $x_{43}$ | $-0.684210526316$  | $+0.47x_{35}$ | $+0.63x_{25}$  | $+0.05x_3$  | $+0.74x_4$  | $+0.05x_5$  | $+0.95x_6$  | $+0.16x_{19}$ |
| $x_{44}$ | $-0.421052631579$  | $+0.37x_{35}$ | $+0.16x_{25}$  | $+0.26x_3$  | $+0.68x_4$  | $+0.26x_5$  | $+0.74x_6$  | $+0.79x_{19}$ |
| $x_{45}$ | $-0.684210526316$  | $+0.47x_{35}$ | $+0.63x_{25}$  | $+0.05x_3$  | $+0.74x_4$  | $+0.05x_5$  | $+0.95x_6$  | $+0.16x_{19}$ |
| $x_{46}$ | $-0.0526315789474$ | $+0.42x_{35}$ | $+0.89x_{25}$  | $+0.16x_3$  | $+0.21x_4$  | $+0.16x_5$  | $+0.84x_6$  | $+0.47x_{19}$ |
| $x_{47}$ | $-0.105263157895$  | $+0.84x_{35}$ | $+0.79x_{25}$  | $+0.32x_3$  | $+0.42x_4$  | $+0.32x_5$  | $+0.68x_6$  | $+0.95x_{19}$ |
| $x_{48}$ | $-0.263157894737$  | $+0.11x_{35}$ | $+0.47x_{25}$  | $+0.79x_3$  | $+0.05x_4$  | $+0.79x_5$  | $+0.21x_6$  | $+0.37x_{19}$ |
| $x_{49}$ | $-0.736842105263$  | $+0.89x_{35}$ | $+0.53x_{25}$  | $+0.21x_3$  | $+0.95x_4$  | $+0.21x_5$  | $+0.79x_6$  | $+0.63x_{19}$ |
| $x_{50}$ | $-0.631578947368$  | $+0.05x_{35}$ | $+0.74x_{25}$  | $+0.89x_3$  | $+0.53x_4$  | $+0.89x_5$  | $+0.11x_6$  | $+0.68x_{19}$ |
| $x_{51}$ | $-0.368421052632$  | $+0.95x_{35}$ | $+0.26x_{25}$  | $+0.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $+0.89x_6$  | $+0.32x_{19}$ |
| $x_{52}$ | $-0.0526315789474$ | $+0.42x_{35}$ | $+0.89x_{25}$  | $+0.16x_3$  | $+0.21x_4$  | $+0.16x_5$  | $+0.84x_6$  | $+0.47x_{19}$ |
| $x_{53}$ | $-0.368421052632$  | $+0.95x_{35}$ | $+0.26x_{25}$  | $+0.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $+0.89x_6$  | $+0.32x_{19}$ |
| $x_{54}$ | $-0.368421052632$  | $+0.95x_{35}$ | $+0.26x_{25}$  | $+0.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $+0.89x_6$  | $+0.32x_{19}$ |
| $x_{55}$ | $-0.842105263158$  | $+0.74x_{35}$ | $+0.32x_{25}$  | $+0.53x_3$  | $+0.37x_4$  | $+0.53x_5$  | $+0.47x_6$  | $+0.58x_{19}$ |
| $x_{56}$ | $-0.684210526316$  | $+0.47x_{35}$ | $+0.63x_{25}$  | $+0.05x_3$  | $+0.74x_4$  | $+0.05x_5$  | $+0.95x_6$  | $+0.16x_{19}$ |
| $x_{57}$ | $-0.947368421053$  | $+0.58x_{35}$ | $+0.11x_{25}$  | $+0.84x_3$  | $+0.79x_4$  | $+0.84x_5$  | $+0.16x_6$  | $+0.53x_{19}$ |
| $x_{58}$ | $-0.368421052632$  | $+0.95x_{35}$ | $+0.26x_{25}$  | $+0.11x_3$  | $+0.47x_4$  | $+0.11x_5$  | $+0.89x_6$  | $+0.32x_{19}$ |
| $x_{59}$ | $-0.315789473684$  | $+0.53x_{35}$ | $+0.37x_{25}$  | $+0.95x_3$  | $+0.26x_4$  | $+0.95x_5$  | $+0.05x_6$  | $+0.84x_{19}$ |
| $x_{60}$ | $-0.0526315789474$ | $+0.42x_{35}$ | $+0.89x_{25}$  | $+0.16x_3$  | $+0.21x_4$  | $+0.16x_5$  | $+0.84x_6$  | $+0.47x_{19}$ |
| $x_{61}$ | $-0.105263157895$  | $+0.84x_{35}$ | $+0.79x_{25}$  | $+0.32x_3$  | $+0.42x_4$  | $+0.32x_5$  | $+0.68x_6$  | $+0.95x_{19}$ |
| $z$      | $-7.10526315789$   | $-0.16x_{35}$ | $-1.21x_{25}$  | $-14.68x_3$ | $-13.58x_4$ | $-6.68x_5$  | $-0.32x_6$  | $-3.05x_{19}$ |

Forming the dual dictionary:  
The Final Dual Dictionary is:

Final primal dictionary obtained:

|          |                        |   |
|----------|------------------------|---|
| $x_2$    | 0.270833333333         | $+0.12x_8 - 2.19x_{38} + 2.21x_3 + 2.31x_4 + 0.21x_5 + 3.31x_{37} + 0.58x_{10}$       |
| $x_9$    | 36.6458333333          | $-1.62x_8 + 28.94x_{38} - 28.04x_3 - 22.56x_4 + 2.96x_5 - 36.56x_{37} - 7.92x_{10}$   |
| $x_7$    | 1.5                    | $+0.00x_8 + 0.50x_{38} + 1.00x_3 + 0.50x_4 + 0.00x_5 - 0.50x_{37} - 0.00x_{10}$       |
| $x_1$    | 1.83333333333          | $-0.00x_8 - 1.50x_{38} + 0.33x_3 + 1.50x_4 + 0.33x_5 + 1.50x_{37} + 0.33x_{10}$       |
| $x_{12}$ | 46.5833333333          | $-2.50x_8 + 41.75x_{38} - 37.17x_3 - 42.25x_4 - 10.17x_5 - 54.25x_{37} - 10.67x_{10}$ |
| $x_{35}$ | 3.20833333333          | $+0.25x_8 - 4.38x_{38} - 1.92x_3 - 2.38x_4 - 3.92x_5 + 10.63x_{37} + 0.83x_{10}$      |
| $x_{14}$ | 10.2708333333          | $+0.13x_8 + 14.81x_{38} - 6.79x_3 - 22.69x_4 - 11.79x_5 - 19.69x_{37} - 4.42x_{10}$   |
| $x_{15}$ | 6.375                  | $+0.25x_8 - 0.88x_{38} - 5.25x_3 - 5.88x_4 - 7.25x_5 + 7.13x_{37} + 0.50x_{10}$       |
| $x_{16}$ | 4.9375                 | $+0.12x_8 - 0.19x_{38} - 3.13x_3 - 3.69x_4 - 4.13x_5 + 4.31x_{37} + 0.25x_{10}$       |
| $x_{17}$ | 13.375                 | $+0.25x_8 + 8.13x_{38} - 10.25x_3 - 12.87x_4 - 13.25x_5 - 2.88x_{37} - 1.50x_{10}$    |
| $x_{18}$ | 1.16666666667          | $+0.00x_8 + 1.50x_{38} - 0.33x_3 - 0.50x_4 - 0.33x_5 - 1.50x_{37} - 0.33x_{10}$       |
| $x_{19}$ | 0.333333333333         | $-0.00x_8 - 0.00x_{38} - 0.67x_3 - 0.00x_4 - 0.67x_5 + 1.00x_{37} + 0.33x_{10}$       |
| $x_{20}$ | 2.70833333333          | $+0.25x_8 - 4.88x_{38} - 1.92x_3 - 1.88x_4 - 3.92x_5 + 11.13x_{37} + 1.83x_{10}$      |
| $x_{21}$ | 1.4375                 | $+0.12x_8 - 2.69x_{38} - 0.13x_3 - 1.19x_4 - 1.13x_5 + 5.81x_{37} + 1.25x_{10}$       |
| $x_{13}$ | 9.83333333333          | $+0.00x_8 + 14.50x_{38} - 8.67x_3 - 10.50x_4 - 9.67x_5 - 16.50x_{37} - 3.67x_{10}$    |
| $x_{22}$ | 4.0                    | $+0.00x_8 + 5.00x_{38} - 4.00x_3 - 4.00x_4 - 4.00x_5 - 4.00x_{37} - 1.00x_{10}$       |
| $x_{24}$ | 9.66666666667          | $+0.00x_8 + 14.00x_{38} - 8.33x_3 - 10.00x_4 - 9.33x_5 - 15.00x_{37} - 3.33x_{10}$    |
| $x_{23}$ | 1.0                    | $+0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 - 0.00x_{37} - 0.00x_{10}$       |
| $x_{26}$ | 11.2708333333          | $+0.13x_8 + 9.81x_{38} - 9.79x_3 - 10.69x_4 - 11.79x_5 - 6.69x_{37} - 2.42x_{10}$     |
| $x_{27}$ | 4.04166666667          | $+0.25x_8 - 4.88x_{38} - 2.58x_3 - 2.88x_4 - 4.58x_5 + 12.13x_{37} + 1.17x_{10}$      |
| $x_{28}$ | 10.0                   | $+0.00x_8 + 13.00x_{38} - 9.00x_3 - 10.00x_4 - 10.00x_5 - 13.00x_{37} - 3.00x_{10}$   |
| $x_{29}$ | 8.16666666667          | $+0.00x_8 + 9.50x_{38} - 7.33x_3 - 8.50x_4 - 8.33x_5 - 8.50x_{37} - 2.33x_{10}$       |
| $x_{30}$ | 9.60416666667          | $+0.13x_8 + 8.81x_{38} - 8.46x_3 - 9.69x_4 - 10.46x_5 - 5.69x_{37} - 2.08x_{10}$      |
| $x_{31}$ | 2.4375                 | $+0.12x_8 - 0.69x_{38} - 2.13x_3 - 2.19x_4 - 3.13x_5 + 3.81x_{37} + 0.25x_{10}$       |
| $x_{32}$ | 13.0416666667          | $+0.25x_8 + 7.13x_{38} - 10.58x_3 - 11.87x_4 - 13.58x_5 - 0.88x_{37} - 1.83x_{10}$    |
| $x_{33}$ | 1.9375                 | $+0.12x_8 - 1.19x_{38} - 1.13x_3 - 1.69x_4 - 2.13x_5 + 4.31x_{37} + 0.25x_{10}$       |
| $x_{34}$ | 2.27083333333          | $+0.12x_8 - 2.19x_{38} - 1.79x_3 - 1.69x_4 - 2.79x_5 + 6.31x_{37} + 0.58x_{10}$       |
| $x_{11}$ | 2.97916666667          | $+0.37x_8 - 7.06x_{38} - 1.71x_3 - 2.56x_4 - 4.71x_5 + 14.44x_{37} + 1.42x_{10}$      |
| $x_6$    | 1.0625                 | $-0.12x_8 + 1.19x_{38} - 0.87x_3 - 0.31x_4 + 0.13x_5 - 1.31x_{37} - 0.25x_{10}$       |
| $x_{36}$ | 1.0                    | $-0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 + 1.00x_{37} + 0.00x_{10}$       |
| $x_{25}$ | 0.166666666667         | $+0.00x_8 + 1.50x_{38} - 0.33x_3 - 0.50x_4 - 0.33x_5 - 1.50x_{37} - 0.33x_{10}$       |
| $x_{39}$ | 2.77083333333          | $+0.12x_8 - 2.69x_{38} - 1.79x_3 - 1.19x_4 - 2.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $x_{40}$ | 3.27083333333          | $+0.12x_8 - 2.19x_{38} - 2.79x_3 - 1.69x_4 - 3.79x_5 + 8.31x_{37} + 0.58x_{10}$       |
| $x_{41}$ | 1.5                    | $+0.00x_8 + 0.50x_{38} - 1.00x_3 - 0.50x_4 - 1.00x_5 + 1.50x_{37} + 0.00x_{10}$       |
| $x_{42}$ | 1.0                    | $-0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 + 1.00x_{37} + 0.00x_{10}$       |
| $x_{43}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{44}$ | 1.83333333333          | $-0.00x_8 - 0.50x_{38} - 1.67x_3 - 0.50x_4 - 1.67x_5 + 3.50x_{37} + 0.33x_{10}$       |
| $x_{45}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{46}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{47}$ | 3.77083333333          | $+0.12x_8 - 1.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $x_{48}$ | 0.5                    | $-0.00x_8 + 0.50x_{38} + 0.00x_3 - 0.50x_4 + 0.00x_5 + 0.50x_{37} + 0.00x_{10}$       |
| $x_{49}$ | 3.27083333333          | $+0.12x_8 - 2.19x_{38} - 2.79x_3 - 1.69x_4 - 3.79x_5 + 8.31x_{37} + 0.58x_{10}$       |
| $x_{50}$ | $-1.12687636999e - 14$ | $+0.00x_8 + 1.00x_{38} + 0.00x_3 + 0.00x_4 + 0.00x_5 - 0.00x_{37} - 0.00x_{10}$       |
| $x_{51}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{52}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{53}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{54}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{55}$ | 2.27083333333          | $+0.12x_8 - 2.19x_{38} - 1.79x_3 - 1.69x_4 - 2.79x_5 + 7.31x_{37} + 0.58x_{10}$       |
| $x_{56}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{57}$ | 1.27083333333          | $+0.12x_8 - 2.19x_{38} - 0.79x_3 - 0.69x_4 - 1.79x_5 + 6.31x_{37} + 0.58x_{10}$       |
| $x_{58}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{59}$ | 1.77083333333          | $+0.12x_8 - 1.69x_{38} - 0.79x_3 - 1.19x_4 - 1.79x_5 + 5.81x_{37} + 0.58x_{10}$       |
| $x_{60}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{61}$ | 3.77083333333          | $+0.12x_8 - 1.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $z$      | -9.16666666667         | $+0.00x_8 - 1.50x_{38} - 11.67x_3 - 12.50x_4 - 3.67x_5 - 2.50x_{37} - 0.67x_{10}$     |



After cutting plane is added

|          |                        |   |
|----------|------------------------|---|
| $x_2$    | 0.270833333333         | $+0.12x_8 - 2.19x_{38} + 2.21x_3 + 2.31x_4 + 0.21x_5 + 3.31x_{37} + 0.58x_{10}$       |
| $x_9$    | 36.6458333333          | $-1.62x_8 + 28.94x_{38} - 28.04x_3 - 22.56x_4 + 2.96x_5 - 36.56x_{37} - 7.92x_{10}$   |
| $x_7$    | 1.5                    | $+0.00x_8 + 0.50x_{38} + 1.00x_3 + 0.50x_4 + 0.00x_5 - 0.50x_{37} - 0.00x_{10}$       |
| $x_1$    | 1.83333333333          | $-0.00x_8 - 1.50x_{38} + 0.33x_3 + 1.50x_4 + 0.33x_5 + 1.50x_{37} + 0.33x_{10}$       |
| $x_{12}$ | 46.5833333333          | $-2.50x_8 + 41.75x_{38} - 37.17x_3 - 42.25x_4 - 10.17x_5 - 54.25x_{37} - 10.67x_{10}$ |
| $x_{35}$ | 3.20833333333          | $+0.25x_8 - 4.38x_{38} - 1.92x_3 - 2.38x_4 - 3.92x_5 + 10.63x_{37} + 0.83x_{10}$      |
| $x_{14}$ | 10.2708333333          | $+0.13x_8 + 14.81x_{38} - 6.79x_3 - 22.69x_4 - 11.79x_5 - 19.69x_{37} - 4.42x_{10}$   |
| $x_{15}$ | 6.375                  | $+0.25x_8 - 0.88x_{38} - 5.25x_3 - 5.88x_4 - 7.25x_5 + 7.13x_{37} + 0.50x_{10}$       |
| $x_{16}$ | 4.9375                 | $+0.12x_8 - 0.19x_{38} - 3.13x_3 - 3.69x_4 - 4.13x_5 + 4.31x_{37} + 0.25x_{10}$       |
| $x_{17}$ | 13.375                 | $+0.25x_8 + 8.13x_{38} - 10.25x_3 - 12.87x_4 - 13.25x_5 - 2.88x_{37} - 1.50x_{10}$    |
| $x_{18}$ | 1.16666666667          | $+0.00x_8 + 1.50x_{38} - 0.33x_3 - 0.50x_4 - 0.33x_5 - 1.50x_{37} - 0.33x_{10}$       |
| $x_{19}$ | 0.333333333333         | $-0.00x_8 - 0.00x_{38} - 0.67x_3 - 0.00x_4 - 0.67x_5 + 1.00x_{37} + 0.33x_{10}$       |
| $x_{20}$ | 2.70833333333          | $+0.25x_8 - 4.88x_{38} - 1.92x_3 - 1.88x_4 - 3.92x_5 + 11.13x_{37} + 1.83x_{10}$      |
| $x_{21}$ | 1.4375                 | $+0.12x_8 - 2.69x_{38} - 0.13x_3 - 1.19x_4 - 1.13x_5 + 5.81x_{37} + 1.25x_{10}$       |
| $x_{13}$ | 9.83333333333          | $+0.00x_8 + 14.50x_{38} - 8.67x_3 - 10.50x_4 - 9.67x_5 - 16.50x_{37} - 3.67x_{10}$    |
| $x_{22}$ | 4.0                    | $+0.00x_8 + 5.00x_{38} - 4.00x_3 - 4.00x_4 - 4.00x_5 - 4.00x_{37} - 1.00x_{10}$       |
| $x_{24}$ | 9.66666666667          | $+0.00x_8 + 14.00x_{38} - 8.33x_3 - 10.00x_4 - 9.33x_5 - 15.00x_{37} - 3.33x_{10}$    |
| $x_{23}$ | 1.0                    | $+0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 - 0.00x_{37} - 0.00x_{10}$       |
| $x_{26}$ | 11.2708333333          | $+0.13x_8 + 9.81x_{38} - 9.79x_3 - 10.69x_4 - 11.79x_5 - 6.69x_{37} - 2.42x_{10}$     |
| $x_{27}$ | 4.04166666667          | $+0.25x_8 - 4.88x_{38} - 2.58x_3 - 2.88x_4 - 4.58x_5 + 12.13x_{37} + 1.17x_{10}$      |
| $x_{28}$ | 10.0                   | $+0.00x_8 + 13.00x_{38} - 9.00x_3 - 10.00x_4 - 10.00x_5 - 13.00x_{37} - 3.00x_{10}$   |
| $x_{29}$ | 8.16666666667          | $+0.00x_8 + 9.50x_{38} - 7.33x_3 - 8.50x_4 - 8.33x_5 - 8.50x_{37} - 2.33x_{10}$       |
| $x_{30}$ | 9.60416666667          | $+0.13x_8 + 8.81x_{38} - 8.46x_3 - 9.69x_4 - 10.46x_5 - 5.69x_{37} - 2.08x_{10}$      |
| $x_{31}$ | 2.4375                 | $+0.12x_8 - 0.69x_{38} - 2.13x_3 - 2.19x_4 - 3.13x_5 + 3.81x_{37} + 0.25x_{10}$       |
| $x_{32}$ | 13.0416666667          | $+0.25x_8 + 7.13x_{38} - 10.58x_3 - 11.87x_4 - 13.58x_5 - 0.88x_{37} - 1.83x_{10}$    |
| $x_{33}$ | 1.9375                 | $+0.12x_8 - 1.19x_{38} - 1.13x_3 - 1.69x_4 - 2.13x_5 + 4.31x_{37} + 0.25x_{10}$       |
| $x_{34}$ | 2.27083333333          | $+0.12x_8 - 2.19x_{38} - 1.79x_3 - 1.69x_4 - 2.79x_5 + 6.31x_{37} + 0.58x_{10}$       |
| $x_{11}$ | 2.97916666667          | $+0.37x_8 - 7.06x_{38} - 1.71x_3 - 2.56x_4 - 4.71x_5 + 14.44x_{37} + 1.42x_{10}$      |
| $x_6$    | 1.0625                 | $-0.12x_8 + 1.19x_{38} - 0.87x_3 - 0.31x_4 + 0.13x_5 - 1.31x_{37} - 0.25x_{10}$       |
| $x_{36}$ | 1.0                    | $-0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 + 1.00x_{37} + 0.00x_{10}$       |
| $x_{25}$ | 0.166666666667         | $+0.00x_8 + 1.50x_{38} - 0.33x_3 - 0.50x_4 - 0.33x_5 - 1.50x_{37} - 0.33x_{10}$       |
| $x_{39}$ | 2.77083333333          | $+0.12x_8 - 2.69x_{38} - 1.79x_3 - 1.19x_4 - 2.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $x_{40}$ | 3.27083333333          | $+0.12x_8 - 2.19x_{38} - 2.79x_3 - 1.69x_4 - 3.79x_5 + 8.31x_{37} + 0.58x_{10}$       |
| $x_{41}$ | 1.5                    | $+0.00x_8 + 0.50x_{38} - 1.00x_3 - 0.50x_4 - 1.00x_5 + 1.50x_{37} + 0.00x_{10}$       |
| $x_{42}$ | 1.0                    | $-0.00x_8 + 1.00x_{38} - 1.00x_3 - 1.00x_4 - 1.00x_5 + 1.00x_{37} + 0.00x_{10}$       |
| $x_{43}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{44}$ | 1.83333333333          | $-0.00x_8 - 0.50x_{38} - 1.67x_3 - 0.50x_4 - 1.67x_5 + 3.50x_{37} + 0.33x_{10}$       |
| $x_{45}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{46}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{47}$ | 3.77083333333          | $+0.12x_8 - 1.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $x_{48}$ | 0.5                    | $-0.00x_8 + 0.50x_{38} + 0.00x_3 - 0.50x_4 + 0.00x_5 + 0.50x_{37} + 0.00x_{10}$       |
| $x_{49}$ | 3.27083333333          | $+0.12x_8 - 2.19x_{38} - 2.79x_3 - 1.69x_4 - 3.79x_5 + 8.31x_{37} + 0.58x_{10}$       |
| $x_{50}$ | $-1.12687636999e - 14$ | $+0.00x_8 + 1.00x_{38} + 0.00x_3 + 0.00x_4 + 0.00x_5 - 0.00x_{37} - 0.00x_{10}$       |
| $x_{51}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{52}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{53}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{54}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{55}$ | 2.27083333333          | $+0.12x_8 - 2.19x_{38} - 1.79x_3 - 1.69x_4 - 2.79x_5 + 7.31x_{37} + 0.58x_{10}$       |
| $x_{56}$ | 2.0                    | $-0.00x_8 - 0.00x_{38} - 2.00x_3 - 1.00x_4 - 2.00x_5 + 3.00x_{37} + 0.00x_{10}$       |
| $x_{57}$ | 1.27083333333          | $+0.12x_8 - 2.19x_{38} - 0.79x_3 - 0.69x_4 - 1.79x_5 + 6.31x_{37} + 0.58x_{10}$       |
| $x_{58}$ | 3.77083333333          | $+0.12x_8 - 2.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 8.81x_{37} + 0.58x_{10}$       |
| $x_{59}$ | 1.77083333333          | $+0.12x_8 - 1.69x_{38} - 0.79x_3 - 1.19x_4 - 1.79x_5 + 5.81x_{37} + 0.58x_{10}$       |
| $x_{60}$ | 2.5                    | $-0.00x_8 + 0.50x_{38} - 2.00x_3 - 1.50x_4 - 2.00x_5 + 2.50x_{37} + 0.00x_{10}$       |
| $x_{61}$ | 3.77083333333          | $+0.12x_8 - 1.69x_{38} - 2.79x_3 - 2.19x_4 - 3.79x_5 + 7.81x_{37} + 0.58x_{10}$       |
| $x_{62}$ | $-0.270833333333$      | $+0.88x_8 + 0.19x_{38} + 0.79x_3 + 0.69x_4 + 0.79x_5 + 0.69x_{37} + 0.42x_{10}$       |
| $x_{63}$ | $-0.645833333332$      | $+0.62x_8 + 0.06x_{38} + 0.04x_3 + 0.56x_4 + 0.04x_5 + 0.56x_{37} + 0.92x_{10}$       |
| $x_{64}$ | -0.5                   | $+1.00x_8 + 0.50x_{38} + 1.00x_3 + 0.50x_4 + 1.00x_5 + 0.50x_{37} + 0.00x_{10}$       |
| $x_{65}$ | $-0.833333333333$      | $+0.00x_8 + 0.50x_{38} + 0.67x_3 + 0.50x_4 + 0.67x_5 + 0.50x_{37} + 0.67x_{10}$       |
| $x_{66}$ | $-0.583333333332$      | $+0.50x_8 + 0.25x_{38} + 0.17x_3 + 0.25x_4 + 0.17x_5 + 0.25x_{37} + 0.67x_{10}$       |

Forming the dual dictionary:  
The Final Dual Dictionary is:

Final primal dictionary obtained:

|          |                |               |                |             |             |             |               |               |
|----------|----------------|---------------|----------------|-------------|-------------|-------------|---------------|---------------|
| $x_2$    | 0.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $+1.57x_3$  | $+1.41x_4$  | $-0.43x_5$  | $+0.90x_{37}$ | $+0.10x_{65}$ |
| $x_9$    | 30.8367346939  | $-1.86x_{81}$ | $+20.06x_{25}$ | $-19.43x_3$ | $-10.45x_4$ | $+11.57x_5$ | $-4.39x_{37}$ | $-1.61x_{65}$ |
| $x_7$    | 1.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $+1.00x_3$  | $+0.57x_4$  | $-0.00x_5$  | $-0.14x_{37}$ | $+0.14x_{65}$ |
| $x_1$    | 2.0            |               | $-1.00x_{25}$  |             | $+1.00x_4$  |             |               |               |
| $x_{12}$ | 38.9795918367  | $-2.86x_{81}$ | $+28.63x_{25}$ | $-25.43x_3$ | $-25.31x_4$ | $+1.57x_5$  | $-8.67x_{37}$ | $-1.33x_{65}$ |
| $x_{35}$ | 3.67346938776  | $+0.29x_{81}$ | $-2.88x_{25}$  | $-2.86x_3$  | $-3.90x_4$  | $-4.86x_5$  | $+6.22x_{37}$ | $-0.22x_{65}$ |
| $x_{14}$ | 7.40816326531  | $+0.14x_{81}$ | $+10.35x_{25}$ | $-2.43x_3$  | $-16.88x_4$ | $-7.43x_5$  | $-3.53x_{37}$ | $-1.47x_{65}$ |
| $x_{15}$ | 6.95918367347  | $+0.29x_{81}$ | $-0.73x_{25}$  | $-5.86x_3$  | $-6.61x_4$  | $-7.86x_5$  | $+5.65x_{37}$ | $+0.35x_{65}$ |
| $x_{16}$ | 5.26530612245  | $+0.14x_{81}$ | $-0.22x_{25}$  | $-3.43x_3$  | $-4.02x_4$  | $-4.43x_5$  | $+3.76x_{37}$ | $+0.24x_{65}$ |
| $x_{17}$ | 12.9591836735  | $+0.29x_{81}$ | $+5.27x_{25}$  | $-8.86x_3$  | $-10.61x_4$ | $-11.86x_5$ | $+4.65x_{37}$ | $+0.35x_{65}$ |
| $x_{18}$ | 1.0            |               | $+1.00x_{25}$  |             |             |             |               |               |
| $x_{19}$ | 0.714285714286 | $-0.00x_{81}$ | $-0.14x_{25}$  | $-1.00x_3$  | $-0.29x_4$  | $-1.00x_5$  | $+0.57x_{37}$ | $+0.43x_{65}$ |
| $x_{20}$ | 4.24489795918  | $+0.29x_{81}$ | $-3.59x_{25}$  | $-3.86x_3$  | $-4.33x_4$  | $-5.86x_5$  | $+5.08x_{37}$ | $+0.92x_{65}$ |
| $x_{21}$ | 2.55102040816  | $+0.14x_{81}$ | $-2.08x_{25}$  | $-1.43x_3$  | $-2.73x_4$  | $-2.43x_5$  | $+2.18x_{37}$ | $+0.82x_{65}$ |
| $x_{13}$ | 7.71428571429  | $+0.00x_{81}$ | $+9.86x_{25}$  | $-5.00x_3$  | $-5.29x_4$  | $-6.00x_5$  | $-1.43x_{37}$ | $-0.57x_{65}$ |
| $x_{22}$ | 3.57142857143  | $-0.00x_{81}$ | $+3.29x_{25}$  | $-3.00x_3$  | $-2.43x_4$  | $-3.00x_5$  | $+0.86x_{37}$ | $+0.14x_{65}$ |
| $x_{24}$ | 7.85714285714  | $+0.00x_{81}$ | $+9.43x_{25}$  | $-5.00x_3$  | $-5.14x_4$  | $-6.00x_5$  | $-0.71x_{37}$ | $-0.29x_{65}$ |
| $x_{23}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{26}$ | 9.97959183673  | $+0.14x_{81}$ | $+6.63x_{25}$  | $-7.43x_3$  | $-7.31x_4$  | $-9.43x_5$  | $+3.33x_{37}$ | $-0.33x_{65}$ |
| $x_{27}$ | 4.81632653061  | $+0.29x_{81}$ | $-3.31x_{25}$  | $-3.86x_3$  | $-4.76x_4$  | $-5.86x_5$  | $+6.94x_{37}$ | $+0.06x_{65}$ |
| $x_{28}$ | 8.42857142857  | $+0.00x_{81}$ | $+8.71x_{25}$  | $-6.00x_3$  | $-5.57x_4$  | $-7.00x_5$  | $+0.14x_{37}$ | $-0.14x_{65}$ |
| $x_{29}$ | 6.85714285714  | $-0.00x_{81}$ | $+6.43x_{25}$  | $-5.00x_3$  | $-5.14x_4$  | $-6.00x_5$  | $+1.29x_{37}$ | $-0.29x_{65}$ |
| $x_{30}$ | 8.55102040816  | $+0.14x_{81}$ | $+5.92x_{25}$  | $-6.43x_3$  | $-6.73x_4$  | $-8.43x_5$  | $+3.18x_{37}$ | $-0.18x_{65}$ |
| $x_{31}$ | 2.69387755102  | $+0.14x_{81}$ | $-0.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+2.90x_{37}$ | $+0.10x_{65}$ |
| $x_{32}$ | 12.1020408163  | $+0.29x_{81}$ | $+4.84x_{25}$  | $-8.86x_3$  | $-9.47x_4$  | $-11.86x_5$ | $+6.37x_{37}$ | $-0.37x_{65}$ |
| $x_{33}$ | 2.12244897959  | $+0.14x_{81}$ | $-0.80x_{25}$  | $-1.43x_3$  | $-2.16x_4$  | $-2.43x_5$  | $+3.04x_{37}$ | $-0.04x_{65}$ |
| $x_{34}$ | 2.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+3.90x_{37}$ | $+0.10x_{65}$ |
| $x_{11}$ | 3.79591836735  | $+0.43x_{81}$ | $-4.67x_{25}$  | $-3.29x_3$  | $-5.06x_4$  | $-6.29x_5$  | $+7.27x_{37}$ | $-0.27x_{65}$ |
| $x_6$    | 0.877551020408 | $-0.14x_{81}$ | $+0.80x_{25}$  | $-0.57x_3$  | $+0.16x_4$  | $+0.43x_5$  | $-0.04x_{37}$ | $+0.04x_{65}$ |
| $x_{36}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+1.71x_{37}$ | $+0.29x_{65}$ |
| $x_{38}$ | 0.142857142857 | $-0.00x_{81}$ | $+0.57x_{25}$  | $-0.00x_3$  | $+0.14x_4$  | $-0.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{39}$ | 3.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-2.43x_3$  | $-2.16x_4$  | $-3.43x_5$  | $+5.04x_{37}$ | $-0.04x_{65}$ |
| $x_{40}$ | 3.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-3.43x_3$  | $-2.59x_4$  | $-4.43x_5$  | $+5.90x_{37}$ | $+0.10x_{65}$ |
| $x_{41}$ | 1.57142857143  | $+0.00x_{81}$ | $+0.29x_{25}$  | $-1.00x_3$  | $-0.43x_4$  | $-1.00x_5$  | $+1.86x_{37}$ | $+0.14x_{65}$ |
| $x_{42}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+1.71x_{37}$ | $+0.29x_{65}$ |
| $x_{43}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{44}$ | 2.14285714286  | $-0.00x_{81}$ | $-0.43x_{25}$  | $-2.00x_3$  | $-0.86x_4$  | $-2.00x_5$  | $+2.71x_{37}$ | $+0.29x_{65}$ |
| $x_{45}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{46}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{47}$ | 4.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-3.43x_3$  | $-3.02x_4$  | $-4.43x_5$  | $+5.76x_{37}$ | $+0.24x_{65}$ |
| $x_{48}$ | 0.571428571429 | $-0.00x_{81}$ | $+0.29x_{25}$  | $-0.00x_3$  | $-0.43x_4$  | $-0.00x_5$  | $+0.86x_{37}$ | $+0.14x_{65}$ |
| $x_{49}$ | 3.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-3.43x_3$  | $-2.59x_4$  | $-4.43x_5$  | $+5.90x_{37}$ | $+0.10x_{65}$ |
| $x_{50}$ | 0.142857142857 | $-0.00x_{81}$ | $+0.57x_{25}$  | $-0.00x_3$  | $+0.14x_4$  | $-0.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{51}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{52}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{53}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{54}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{55}$ | 2.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+4.90x_{37}$ | $+0.10x_{65}$ |
| $x_{56}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{57}$ | 1.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-1.43x_3$  | $-1.59x_4$  | $-2.43x_5$  | $+3.90x_{37}$ | $+0.10x_{65}$ |
| $x_{58}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{59}$ | 2.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-1.43x_3$  | $-2.02x_4$  | $-2.43x_5$  | $+3.76x_{37}$ | $+0.24x_{65}$ |
| $x_{60}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{61}$ | 4.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-3.43x_3$  | $-3.02x_4$  | $-4.43x_5$  | $+5.76x_{37}$ | $+0.24x_{65}$ |
| $x_{63}$ | 0.755102040817 | $+0.71x_{81}$ | $-0.41x_{25}$  | $-1.14x_3$  | $-0.67x_4$  | $-1.14x_5$  | $-1.08x_{37}$ | $+1.08x_{65}$ |
| $x_{62}$ | 0.714285714285 | $+1.00x_{81}$ | $-0.14x_{25}$  | $+0.00x_3$  | $-0.29x_4$  | $+0.00x_5$  | $-0.43x_{37}$ | $+0.43x_{65}$ |
| $x_8$    | 0.551020408163 | $+1.14x_{81}$ | $-0.08x_{25}$  | $-0.43x_3$  | $-0.73x_4$  | $-0.43x_5$  | $-0.82x_{37}$ | $-0.18x_{65}$ |
| $x_{10}$ | 1.14285714286  | $-0.00x_{81}$ | $-0.43x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $-1.29x_{37}$ | $+1.29x_{65}$ |
| $x_{37}$ | 0.489795918369 | $+0.57x_{81}$ | $-0.18x_{25}$  | $-0.71x_3$  | $-0.65x_4$  | $-0.71x_5$  | $-0.84x_{37}$ | $+0.84x_{65}$ |

After cutting plane is added

|          |                |               |                |             |             |             |               |               |
|----------|----------------|---------------|----------------|-------------|-------------|-------------|---------------|---------------|
| $x_2$    | 0.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $+1.57x_3$  | $+1.41x_4$  | $-0.43x_5$  | $+0.90x_{37}$ | $+0.10x_{65}$ |
| $x_9$    | 30.8367346939  | $-1.86x_{81}$ | $+20.06x_{25}$ | $-19.43x_3$ | $-10.45x_4$ | $+11.57x_5$ | $-4.39x_{37}$ | $-1.61x_{65}$ |
| $x_7$    | 1.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $+1.00x_3$  | $+0.57x_4$  | $-0.00x_5$  | $-0.14x_{37}$ | $+0.14x_{65}$ |
| $x_1$    | 2.0            |               | $-1.00x_{25}$  |             | $+1.00x_4$  |             |               |               |
| $x_{12}$ | 38.9795918367  | $-2.86x_{81}$ | $+28.63x_{25}$ | $-25.43x_3$ | $-25.31x_4$ | $+1.57x_5$  | $-8.67x_{37}$ | $-1.33x_{65}$ |
| $x_{35}$ | 3.67346938776  | $+0.29x_{81}$ | $-2.88x_{25}$  | $-2.86x_3$  | $-3.90x_4$  | $-4.86x_5$  | $+6.22x_{37}$ | $-0.22x_{65}$ |
| $x_{14}$ | 7.40816326531  | $+0.14x_{81}$ | $+10.35x_{25}$ | $-2.43x_3$  | $-16.88x_4$ | $-7.43x_5$  | $-3.53x_{37}$ | $-1.47x_{65}$ |
| $x_{15}$ | 6.95918367347  | $+0.29x_{81}$ | $-0.73x_{25}$  | $-5.86x_3$  | $-6.61x_4$  | $-7.86x_5$  | $+5.65x_{37}$ | $+0.35x_{65}$ |
| $x_{16}$ | 5.26530612245  | $+0.14x_{81}$ | $-0.22x_{25}$  | $-3.43x_3$  | $-4.02x_4$  | $-4.43x_5$  | $+3.76x_{37}$ | $+0.24x_{65}$ |
| $x_{17}$ | 12.9591836735  | $+0.29x_{81}$ | $+5.27x_{25}$  | $-8.86x_3$  | $-10.61x_4$ | $-11.86x_5$ | $+4.65x_{37}$ | $+0.35x_{65}$ |
| $x_{18}$ | 1.0            |               | $+1.00x_{25}$  |             |             |             |               |               |
| $x_{19}$ | 0.714285714286 | $-0.00x_{81}$ | $-0.14x_{25}$  | $-1.00x_3$  | $-0.29x_4$  | $-1.00x_5$  | $+0.57x_{37}$ | $+0.43x_{65}$ |
| $x_{20}$ | 4.24489795918  | $+0.29x_{81}$ | $-3.59x_{25}$  | $-3.86x_3$  | $-4.33x_4$  | $-5.86x_5$  | $+5.08x_{37}$ | $+0.92x_{65}$ |
| $x_{21}$ | 2.55102040816  | $+0.14x_{81}$ | $-2.08x_{25}$  | $-1.43x_3$  | $-2.73x_4$  | $-2.43x_5$  | $+2.18x_{37}$ | $+0.82x_{65}$ |
| $x_{13}$ | 7.71428571429  | $+0.00x_{81}$ | $+9.86x_{25}$  | $-5.00x_3$  | $-5.29x_4$  | $-6.00x_5$  | $-1.43x_{37}$ | $-0.57x_{65}$ |
| $x_{22}$ | 3.57142857143  | $-0.00x_{81}$ | $+3.29x_{25}$  | $-3.00x_3$  | $-2.43x_4$  | $-3.00x_5$  | $+0.86x_{37}$ | $+0.14x_{65}$ |
| $x_{24}$ | 7.85714285714  | $+0.00x_{81}$ | $+9.43x_{25}$  | $-5.00x_3$  | $-5.14x_4$  | $-6.00x_5$  | $-0.71x_{37}$ | $-0.29x_{65}$ |
| $x_{23}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{26}$ | 9.97959183673  | $+0.14x_{81}$ | $+6.63x_{25}$  | $-7.43x_3$  | $-7.31x_4$  | $-9.43x_5$  | $+3.33x_{37}$ | $-0.33x_{65}$ |
| $x_{27}$ | 4.81632653061  | $+0.29x_{81}$ | $-3.31x_{25}$  | $-3.86x_3$  | $-4.76x_4$  | $-5.86x_5$  | $+6.94x_{37}$ | $+0.06x_{65}$ |
| $x_{28}$ | 8.42857142857  | $+0.00x_{81}$ | $+8.71x_{25}$  | $-6.00x_3$  | $-5.57x_4$  | $-7.00x_5$  | $+0.14x_{37}$ | $-0.14x_{65}$ |
| $x_{29}$ | 6.85714285714  | $-0.00x_{81}$ | $+6.43x_{25}$  | $-5.00x_3$  | $-5.14x_4$  | $-6.00x_5$  | $+1.29x_{37}$ | $-0.29x_{65}$ |
| $x_{30}$ | 8.55102040816  | $+0.14x_{81}$ | $+5.92x_{25}$  | $-6.43x_3$  | $-6.73x_4$  | $-8.43x_5$  | $+3.18x_{37}$ | $-0.18x_{65}$ |
| $x_{31}$ | 2.69387755102  | $+0.14x_{81}$ | $-0.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+2.90x_{37}$ | $+0.10x_{65}$ |
| $x_{32}$ | 12.1020408163  | $+0.29x_{81}$ | $+4.84x_{25}$  | $-8.86x_3$  | $-9.47x_4$  | $-11.86x_5$ | $+6.37x_{37}$ | $-0.37x_{65}$ |
| $x_{33}$ | 2.12244897959  | $+0.14x_{81}$ | $-0.80x_{25}$  | $-1.43x_3$  | $-2.16x_4$  | $-2.43x_5$  | $+3.04x_{37}$ | $-0.04x_{65}$ |
| $x_{34}$ | 2.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+3.90x_{37}$ | $+0.10x_{65}$ |
| $x_{11}$ | 3.79591836735  | $+0.43x_{81}$ | $-4.67x_{25}$  | $-3.29x_3$  | $-5.06x_4$  | $-6.29x_5$  | $+7.27x_{37}$ | $-0.27x_{65}$ |
| $x_6$    | 0.877551020408 | $-0.14x_{81}$ | $+0.80x_{25}$  | $-0.57x_3$  | $+0.16x_4$  | $+0.43x_5$  | $-0.04x_{37}$ | $+0.04x_{65}$ |
| $x_{36}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+1.71x_{37}$ | $+0.29x_{65}$ |
| $x_{38}$ | 0.142857142857 | $-0.00x_{81}$ | $+0.57x_{25}$  | $-0.00x_3$  | $+0.14x_4$  | $-0.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{39}$ | 3.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-2.43x_3$  | $-2.16x_4$  | $-3.43x_5$  | $+5.04x_{37}$ | $-0.04x_{65}$ |
| $x_{40}$ | 3.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-3.43x_3$  | $-2.59x_4$  | $-4.43x_5$  | $+5.90x_{37}$ | $+0.10x_{65}$ |
| $x_{41}$ | 1.57142857143  | $+0.00x_{81}$ | $+0.29x_{25}$  | $-1.00x_3$  | $-0.43x_4$  | $-1.00x_5$  | $+1.86x_{37}$ | $+0.14x_{65}$ |
| $x_{42}$ | 1.14285714286  | $-0.00x_{81}$ | $+0.57x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $+1.71x_{37}$ | $+0.29x_{65}$ |
| $x_{43}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{44}$ | 2.14285714286  | $-0.00x_{81}$ | $-0.43x_{25}$  | $-2.00x_3$  | $-0.86x_4$  | $-2.00x_5$  | $+2.71x_{37}$ | $+0.29x_{65}$ |
| $x_{45}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{46}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{47}$ | 4.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-3.43x_3$  | $-3.02x_4$  | $-4.43x_5$  | $+5.76x_{37}$ | $+0.24x_{65}$ |
| $x_{48}$ | 0.571428571429 | $-0.00x_{81}$ | $+0.29x_{25}$  | $-0.00x_3$  | $-0.43x_4$  | $-0.00x_5$  | $+0.86x_{37}$ | $+0.14x_{65}$ |
| $x_{49}$ | 3.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-3.43x_3$  | $-2.59x_4$  | $-4.43x_5$  | $+5.90x_{37}$ | $+0.10x_{65}$ |
| $x_{50}$ | 0.142857142857 | $-0.00x_{81}$ | $+0.57x_{25}$  | $-0.00x_3$  | $+0.14x_4$  | $-0.00x_5$  | $+0.71x_{37}$ | $+0.29x_{65}$ |
| $x_{51}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{52}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{53}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{54}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{55}$ | 2.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-2.43x_3$  | $-2.59x_4$  | $-3.43x_5$  | $+4.90x_{37}$ | $+0.10x_{65}$ |
| $x_{56}$ | 2.0            | $-0.00x_{81}$ | $-0.00x_{25}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$ | $+0.00x_{65}$ |
| $x_{57}$ | 1.69387755102  | $+0.14x_{81}$ | $-1.51x_{25}$  | $-1.43x_3$  | $-1.59x_4$  | $-2.43x_5$  | $+3.90x_{37}$ | $+0.10x_{65}$ |
| $x_{58}$ | 4.12244897959  | $+0.14x_{81}$ | $-1.80x_{25}$  | $-3.43x_3$  | $-3.16x_4$  | $-4.43x_5$  | $+6.04x_{37}$ | $-0.04x_{65}$ |
| $x_{59}$ | 2.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-1.43x_3$  | $-2.02x_4$  | $-2.43x_5$  | $+3.76x_{37}$ | $+0.24x_{65}$ |
| $x_{60}$ | 2.57142857143  | $-0.00x_{81}$ | $+0.29x_{25}$  | $-2.00x_3$  | $-1.43x_4$  | $-2.00x_5$  | $+2.86x_{37}$ | $+0.14x_{65}$ |
| $x_{61}$ | 4.26530612245  | $+0.14x_{81}$ | $-1.22x_{25}$  | $-3.43x_3$  | $-3.02x_4$  | $-4.43x_5$  | $+5.76x_{37}$ | $+0.24x_{65}$ |
| $x_{63}$ | 0.755102040817 | $+0.71x_{81}$ | $-0.41x_{25}$  | $-1.14x_3$  | $-0.67x_4$  | $-1.14x_5$  | $-1.08x_{37}$ | $+1.08x_{65}$ |
| $x_{62}$ | 0.714285714285 | $+1.00x_{81}$ | $-0.14x_{25}$  | $+0.00x_3$  | $-0.29x_4$  | $+0.00x_5$  | $-0.43x_{37}$ | $+0.43x_{65}$ |
| $x_8$    | 0.551020408163 | $+1.14x_{81}$ | $-0.08x_{25}$  | $-0.43x_3$  | $-0.73x_4$  | $-0.43x_5$  | $-0.82x_{37}$ | $-0.18x_{65}$ |
| $x_{10}$ | 1.14285714286  | $-0.00x_{81}$ | $-0.43x_{25}$  | $-1.00x_3$  | $-0.86x_4$  | $-1.00x_5$  | $-1.29x_{37}$ | $+1.29x_{65}$ |
| $x_{25}$ | 0.489795918369 | $+0.57x_{81}$ | $-0.18x_{25}$  | $-0.71x_3$  | $-0.65x_4$  | $-0.71x_5$  | $-0.84x_{37}$ | $+0.84x_{65}$ |

Forming the dual dictionary:  
The Final Dual Dictionary is:

Final primal dictionary obtained:

|           |      |             |                 |             |             |             |                |                 |
|-----------|------|-------------|-----------------|-------------|-------------|-------------|----------------|-----------------|
| $x_{81}$  | 5.0  | $+7.00x_2$  | $+21.50x_{126}$ | $-11.00x_3$ | $-9.50x_4$  | $+3.00x_5$  | $-16.50x_{37}$ | $-12.00x_{116}$ |
| $x_9$     | 40.0 | $-13.00x_2$ | $+1.00x_{126}$  | $+1.00x_3$  | $+8.00x_4$  | $+6.00x_5$  | $+7.00x_{37}$  | $-1.00x_{116}$  |
| $x_7$     | 2.0  | $-0.00x_2$  | $+0.50x_{126}$  | $+1.00x_3$  | $+0.50x_4$  | $-0.00x_5$  | $-0.50x_{37}$  | $+0.00x_{116}$  |
| $x_1$     | 1.0  | $-0.00x_2$  | $-2.00x_{126}$  | $-0.00x_3$  | $+1.00x_4$  | $-0.00x_5$  | $+1.00x_{37}$  | $+1.00x_{116}$  |
| $x_{12}$  | 52.0 | $-20.00x_2$ | $-3.50x_{126}$  | $+6.00x_3$  | $+2.50x_4$  | $-7.00x_5$  | $+10.50x_{37}$ | $+3.00x_{116}$  |
| $x_{35}$  | 2.0  | $+2.00x_2$  | $+0.50x_{126}$  | $-6.00x_3$  | $-6.50x_4$  | $-4.00x_5$  | $+4.50x_{37}$  | $-1.00x_{116}$  |
| $x_{110}$ | 4.0  | $+6.00x_2$  | $+19.00x_{126}$ | $-9.00x_3$  | $-8.00x_4$  | $+3.00x_5$  | $-14.00x_{37}$ | $-10.00x_{116}$ |
| $x_{15}$  | 8.0  | $+2.00x_2$  | $+4.50x_{126}$  | $-9.00x_3$  | $-9.50x_4$  | $-7.00x_5$  | $+1.50x_{37}$  | $-2.00x_{116}$  |
| $x_{16}$  | 6.0  | $+1.00x_2$  | $+2.50x_{126}$  | $-5.00x_3$  | $-5.50x_4$  | $-4.00x_5$  | $+1.50x_{37}$  | $-1.00x_{116}$  |
| $x_{17}$  | 20.0 | $+2.00x_2$  | $+16.50x_{126}$ | $-12.00x_3$ | $-13.50x_4$ | $-11.00x_5$ | $-5.50x_{37}$  | $-8.00x_{116}$  |
| $x_{18}$  | 2.0  | $+0.00x_2$  | $+2.00x_{126}$  | $+0.00x_3$  | $-0.00x_4$  | $+0.00x_5$  | $-1.00x_{37}$  | $-1.00x_{116}$  |
| $x_{19}$  | 1.0  | $-0.00x_2$  | $-0.50x_{126}$  | $-1.00x_3$  | $-0.50x_4$  | $-1.00x_5$  | $+0.50x_{37}$  | $+1.00x_{116}$  |
| $x_{20}$  | 3.0  | $+2.00x_2$  | $-1.50x_{126}$  | $-7.00x_3$  | $-7.50x_4$  | $-5.00x_5$  | $+3.50x_{37}$  | $+2.00x_{116}$  |
| $x_{21}$  | 2.0  | $+1.00x_2$  | $-1.50x_{126}$  | $-3.00x_3$  | $-4.50x_4$  | $-2.00x_5$  | $+1.50x_{37}$  | $+2.00x_{116}$  |
| $x_{109}$ | 1.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-0.00x_3$  | $-0.00x_4$  | $-0.00x_5$  | $-1.00x_{37}$  | $+1.00x_{116}$  |
| $x_{22}$  | 7.0  | $-0.00x_2$  | $+6.50x_{126}$  | $-3.00x_3$  | $-2.50x_4$  | $-3.00x_5$  | $-2.50x_{37}$  | $-3.00x_{116}$  |
| $x_{24}$  | 17.0 | $+0.00x_2$  | $+19.00x_{126}$ | $-5.00x_3$  | $-5.00x_4$  | $-6.00x_5$  | $-10.00x_{37}$ | $-10.00x_{116}$ |
| $x_{23}$  | 2.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-1.00x_3$  | $-1.00x_4$  | $-1.00x_5$  | $+0.00x_{37}$  | $+0.00x_{116}$  |
| $x_{26}$  | 17.0 | $+1.00x_2$  | $+16.50x_{126}$ | $-9.00x_3$  | $-8.50x_4$  | $-9.00x_5$  | $-5.50x_{37}$  | $-9.00x_{116}$  |
| $x_{27}$  | 3.0  | $+2.00x_2$  | $-0.50x_{126}$  | $-7.00x_3$  | $-7.50x_4$  | $-5.00x_5$  | $+5.50x_{37}$  | $+0.00x_{116}$  |
| $x_{28}$  | 17.0 | $+0.00x_2$  | $+17.50x_{126}$ | $-6.00x_3$  | $-5.50x_4$  | $-7.00x_5$  | $-8.50x_{37}$  | $-9.00x_{116}$  |
| $x_{29}$  | 13.0 | $+0.00x_2$  | $+13.00x_{126}$ | $-5.00x_3$  | $-5.00x_4$  | $-6.00x_5$  | $-5.00x_{37}$  | $-7.00x_{116}$  |
| $x_{30}$  | 15.0 | $+1.00x_2$  | $+15.00x_{126}$ | $-8.00x_3$  | $-8.00x_4$  | $-8.00x_5$  | $-5.00x_{37}$  | $-8.00x_{116}$  |
| $x_{31}$  | 3.0  | $+1.00x_2$  | $+2.00x_{126}$  | $-4.00x_3$  | $-4.00x_4$  | $-3.00x_5$  | $+1.00x_{37}$  | $-1.00x_{116}$  |
| $x_{32}$  | 18.0 | $+2.00x_2$  | $+16.00x_{126}$ | $-12.00x_3$ | $-12.00x_4$ | $-11.00x_5$ | $-3.00x_{37}$  | $-9.00x_{116}$  |
| $x_{33}$  | 2.0  | $+1.00x_2$  | $+1.50x_{126}$  | $-3.00x_3$  | $-3.50x_4$  | $-2.00x_5$  | $+1.50x_{37}$  | $-1.00x_{116}$  |
| $x_{34}$  | 2.0  | $+1.00x_2$  | $-0.00x_{126}$  | $-4.00x_3$  | $-4.00x_4$  | $-3.00x_5$  | $+3.00x_{37}$  | $+0.00x_{116}$  |
| $x_{11}$  | 1.0  | $+3.00x_2$  | $-0.00x_{126}$  | $-8.00x_3$  | $-9.00x_4$  | $-5.00x_5$  | $+5.00x_{37}$  | $-1.00x_{116}$  |
| $x_{13}$  | 17.0 | $+0.00x_2$  | $+20.00x_{126}$ | $-5.00x_3$  | $-5.00x_4$  | $-6.00x_5$  | $-11.00x_{37}$ | $-11.00x_{116}$ |
| $x_{36}$  | 2.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-1.00x_3$  | $-1.00x_4$  | $-1.00x_5$  | $+1.00x_{37}$  | $+0.00x_{116}$  |
| $x_{38}$  | 1.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-0.00x_3$  | $-0.00x_4$  | $-0.00x_5$  | $+0.00x_{37}$  | $+0.00x_{116}$  |
| $x_{39}$  | 2.0  | $+1.00x_2$  | $-0.50x_{126}$  | $-4.00x_3$  | $-3.50x_4$  | $-3.00x_5$  | $+4.50x_{37}$  | $+0.00x_{116}$  |
| $x_{40}$  | 3.0  | $+1.00x_2$  | $-0.00x_{126}$  | $-5.00x_3$  | $-4.00x_4$  | $-4.00x_5$  | $+5.00x_{37}$  | $+0.00x_{116}$  |
| $x_{41}$  | 2.0  | $+0.00x_2$  | $+0.50x_{126}$  | $-1.00x_3$  | $-0.50x_4$  | $-1.00x_5$  | $+1.50x_{37}$  | $+0.00x_{116}$  |
| $x_{42}$  | 2.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-1.00x_3$  | $-1.00x_4$  | $-1.00x_5$  | $+1.00x_{37}$  | $+0.00x_{116}$  |
| $x_{43}$  | 2.0  | $-0.00x_2$  | $-0.00x_{126}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$  | $+0.00x_{116}$  |
| $x_{44}$  | 2.0  | $-0.00x_2$  | $-1.00x_{126}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$  | $+1.00x_{116}$  |
| $x_{45}$  | 2.0  | $-0.00x_2$  | $-0.00x_{126}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$  | $+0.00x_{116}$  |
| $x_{46}$  | 3.0  | $-0.00x_2$  | $+0.50x_{126}$  | $-2.00x_3$  | $-1.50x_4$  | $-2.00x_5$  | $+2.50x_{37}$  | $+0.00x_{116}$  |
| $x_{47}$  | 4.0  | $+1.00x_2$  | $+0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+4.50x_{37}$  | $+0.00x_{116}$  |
| $x_{48}$  | 1.0  | $-0.00x_2$  | $+0.50x_{126}$  | $-0.00x_3$  | $-0.50x_4$  | $-0.00x_5$  | $+0.50x_{37}$  | $+0.00x_{116}$  |
| $x_{49}$  | 3.0  | $+1.00x_2$  | $-0.00x_{126}$  | $-5.00x_3$  | $-4.00x_4$  | $-4.00x_5$  | $+5.00x_{37}$  | $+0.00x_{116}$  |
| $x_{50}$  | 1.0  | $-0.00x_2$  | $+1.00x_{126}$  | $-0.00x_3$  | $-0.00x_4$  | $-0.00x_5$  | $+0.00x_{37}$  | $+0.00x_{116}$  |
| $x_{51}$  | 3.0  | $+1.00x_2$  | $-0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+5.50x_{37}$  | $+0.00x_{116}$  |
| $x_{52}$  | 3.0  | $-0.00x_2$  | $+0.50x_{126}$  | $-2.00x_3$  | $-1.50x_4$  | $-2.00x_5$  | $+2.50x_{37}$  | $+0.00x_{116}$  |
| $x_{53}$  | 3.0  | $+1.00x_2$  | $-0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+5.50x_{37}$  | $+0.00x_{116}$  |
| $x_{54}$  | 3.0  | $+1.00x_2$  | $-0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+5.50x_{37}$  | $+0.00x_{116}$  |
| $x_{55}$  | 2.0  | $+1.00x_2$  | $-0.00x_{126}$  | $-4.00x_3$  | $-4.00x_4$  | $-3.00x_5$  | $+4.00x_{37}$  | $+0.00x_{116}$  |
| $x_{56}$  | 2.0  | $-0.00x_2$  | $-0.00x_{126}$  | $-2.00x_3$  | $-1.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$  | $+0.00x_{116}$  |
| $x_{57}$  | 1.0  | $+1.00x_2$  | $-0.00x_{126}$  | $-3.00x_3$  | $-3.00x_4$  | $-2.00x_5$  | $+3.00x_{37}$  | $+0.00x_{116}$  |
| $x_{58}$  | 3.0  | $+1.00x_2$  | $-0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+5.50x_{37}$  | $+0.00x_{116}$  |
| $x_{59}$  | 2.0  | $+1.00x_2$  | $+0.50x_{126}$  | $-3.00x_3$  | $-3.50x_4$  | $-2.00x_5$  | $+2.50x_{37}$  | $+0.00x_{116}$  |
| $x_{60}$  | 3.0  | $-0.00x_2$  | $+0.50x_{126}$  | $-2.00x_3$  | $-1.50x_4$  | $-2.00x_5$  | $+2.50x_{37}$  | $+0.00x_{116}$  |
| $x_{61}$  | 4.0  | $+1.00x_2$  | $+0.50x_{126}$  | $-5.00x_3$  | $-4.50x_4$  | $-4.00x_5$  | $+4.50x_{37}$  | $+0.00x_{116}$  |
| $x_{63}$  | 5.0  | $+5.00x_2$  | $+14.00x_{126}$ | $-9.00x_3$  | $-8.00x_4$  | $+1.00x_5$  | $-13.00x_{37}$ | $-6.00x_{116}$  |
| $x_{62}$  | 6.0  | $+7.00x_2$  | $+21.00x_{126}$ | $-11.00x_3$ | $-10.00x_4$ | $+3.00x_5$  | $-17.00x_{37}$ | $-11.00x_{116}$ |
| $x_{14}$  | 17.0 | $+1.00x_2$  | $+24.50x_{126}$ | $-4.00x_3$  | $-17.50x_4$ | $-7.00x_5$  | $-15.50x_{37}$ | $-15.00x_{116}$ |
| $x_{10}$  | 2.0  | $-0.00x_2$  | $-1.50x_{126}$  | $-1.00x_3$  | $-1.50x_4$  | $-1.00x_5$  | $-1.50x_{37}$  | $+3.00x_{116}$  |
| $x_{25}$  | 4.0  | $+4.00x_2$  | $+11.50x_{126}$ | $-7.00x_3$  | $-6.50x_4$  | $+1.00x_5$  | $-10.50x_{37}$ | $-5.00x_{116}$  |

Final answer: -12.000000 Done.Added 183 cuts