Read in the following dictionary:

x_8	28.0	$-4.00x_1$	$-2.00x_2$		$+4.00x_4$	$+2.00x_5$	$-1.00x_6$	$-5.00x_7$
x_9	24.0	$+2.00x_1$	$-2.00x_2$	$-3.00x_3$	$-2.00x_4$	$-7.00x_5$	$-7.00x_6$	$-1.00x_7$
x_{10}	-8.0	$+2.00x_1$	$+4.00x_2$	$+1.00x_3$	$-5.00x_4$	$-3.00x_5$	$-10.00x_6$	$+8.00x_7$
x_{11}	47.0	$+5.00x_1$	$-7.00x_2$	$-6.00x_3$	$-5.00x_4$	$+3.00x_5$	$+9.00x_6$	$-8.00x_7$
x_{12}	0.0	$+3.00x_1$	$+5.00x_2$	$-8.00x_3$	$-7.00x_4$	$-10.00x_5$	$+6.00x_6$	$+3.00x_7$
x_{13}	-1.0	$-5.00x_1$	$+2.00x_2$	$-6.00x_3$	$+4.00x_4$	$+1.00x_5$		$+5.00x_7$
z	0.0	$-3.00x_1$	$+2.00x_2$	$+3.00x_3$			$-1.00x_6$	

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 $j = 1, \ldots, 13$ Dual Dictionary (with objective changed is):

y_1	1.0	$+4.00y_8$	$-2.00y_9$	$-2.00y_{10}$	$-5.00y_{11}$	$-3.00y_{12}$	$+5.00y_{13}$
y_2	1.0	$+2.00y_8$	$+2.00y_9$	$-4.00y_{10}$	$+7.00y_{11}$	$-5.00y_{12}$	$-2.00y_{13}$
y_3	1.0		$+3.00y_9$	$-1.00y_{10}$	$+6.00y_{11}$	$+8.00y_{12}$	$+6.00y_{13}$
y_4	1.0	$-4.00y_8$	$+2.00y_9$	$+5.00y_{10}$	$+5.00y_{11}$	$+7.00y_{12}$	$-4.00y_{13}$
y_5	1.0	$-2.00y_8$	$+7.00y_9$	$+3.00y_{10}$	$-3.00y_{11}$	$+10.00y_{12}$	$-1.00y_{13}$
y_6	1.0	$+1.00y_8$	$+7.00y_9$	$+10.00y_{10}$	$-9.00y_{11}$	$-6.00y_{12}$	
y_7	1.0	$+5.00y_8$	$+1.00y_9$	$-8.00y_{10}$	$+8.00y_{11}$	$-3.00y_{12}$	$-5.00y_{13}$
z	-0	$-28.00y_8$	$-24.00y_9$	$+8.00y_{10}$	$-47.00y_{11}$		$+1.00y_{13}$

Initialization succeeded in finding final dual dictionary with 2 pivots

y_1	0.75	$+2.75y_8$	$-2.25y_9$	$+0.25y_7$	$-7.00y_{11}$	$-2.25y_{12}$	$+6.25y_{13}$
y_2	0.5	$-0.50y_8$	$+1.50y_9$	$+0.50y_7$	$+3.00y_{11}$	$-3.50y_{12}$	$+0.50y_{13}$
y_3	0.875	$-0.62y_8$	$+2.88y_9$	$+0.12y_7$	$+5.00y_{11}$	$+8.38y_{12}$	$+6.62y_{13}$
y_4	1.625	$-0.88y_8$	$+2.62y_9$	$-0.62y_7$	$+10.00y_{11}$	$+5.12y_{12}$	$-7.12y_{13}$
y_5	1.375	$-0.12y_8$	$+7.38y_9$	$-0.38y_7$		$+8.88y_{12}$	$-2.88y_{13}$
y_6	2.25	$+7.25y_8$	$+8.25y_9$	$-1.25y_7$	$+1.00y_{11}$	$-9.75y_{12}$	$-6.25y_{13}$
y_{10}	0.125	$+0.62y_8$	$+0.12y_9$	$-0.12y_7$	$+1.00y_{11}$	$-0.38y_{12}$	$-0.62y_{13}$
z	1.0	$-23.00y_8$	$-23.00y_9$	$-1.00y_7$	$-39.00y_{11}$	$-3.00y_{12}$	$-4.00y_{13}$

Primal Dictionary is:

x_8	23.0	$-2.75x_1$	$+0.50x_2$	$+0.62x_3$	$+0.88x_4$	$+0.12x_5$	$-7.25x_6$	$-0.62x_{10}$
x_9	23.0	$+2.25x_1$	$-1.50x_2$	$-2.88x_3$	$-2.62x_4$	$-7.38x_5$	$-8.25x_6$	$-0.12x_{10}$
x_7	1.0	$-0.25x_1$	$-0.50x_2$	$-0.12x_3$	$+0.62x_4$	$+0.38x_5$	$+1.25x_6$	$+0.12x_{10}$
x_{11}	39.0	$+7.00x_1$	$-3.00x_2$	$-5.00x_3$	$-10.00x_4$		$-1.00x_6$	$-1.00x_{10}$
x_{12}	3.0	$+2.25x_1$	$+3.50x_2$	$-8.38x_3$	$-5.12x_4$	$-8.88x_5$	$+9.75x_6$	$+0.38x_{10}$
x_{13}	4.0	$-6.25x_1$	$-0.50x_2$	$-6.62x_3$	$+7.12x_4$	$+2.88x_5$	$+6.25x_6$	$+0.62x_{10}$
z	-1.0	$-0.75x_1$	$-0.50x_2$	$-0.88x_3$	$-1.62x_4$	$-1.38x_5$	$-2.25x_6$	$-0.12x_{10}$

Primal Dictionary with original objective is:

x_8	23.0	$-2.75x_1$	$+0.50x_2$	$+0.62x_3$	$+0.88x_4$	$+0.12x_5$	$-7.25x_6$ $-0.62x_{10}$
x_9	23.0	$+2.25x_1$	$-1.50x_2$	$-2.88x_3$	$-2.62x_4$	$-7.38x_5$	$-8.25x_6$ $-0.12x_{10}$
x_7	1.0	$-0.25x_1$	$-0.50x_2$	$-0.12x_3$	$+0.62x_4$	$+0.38x_5$	$+1.25x_6$ $+0.12x_{10}$
x_{11}	39.0	$+7.00x_1$	$-3.00x_2$	$-5.00x_3$	$-10.00x_4$		$-1.00x_6$ $-1.00x_{10}$
x_{12}	3.0	$+2.25x_1$	$+3.50x_2$	$-8.38x_3$	$-5.12x_4$	$-8.88x_5$	$+9.75x_6$ $+0.38x_{10}$
x_{13}	4.0	$-6.25x_1$	$-0.50x_2$	$-6.62x_3$	$+7.12x_4$	$+2.88x_5$	$+6.25x_6$ $+0.62x_{10}$
z	0.0	$-3.00x_1$	$+2.00x_2$	$+3.00x_3$			$-1.00x_6$

1 Optimization Phase Simplex

Starting Dictionary is:

x_8	23.0	$-2.75x_1$	$+0.50x_2$	$+0.62x_3$	$+0.88x_4$	$+0.12x_5$	$-7.25x_6$ $-0.62x_{10}$
x_9	23.0	$+2.25x_1$	$-1.50x_2$	$-2.88x_3$	$-2.62x_4$	$-7.38x_5$	$-8.25x_6$ $-0.12x_{10}$
x_7	1.0	$-0.25x_1$	$-0.50x_2$	$-0.12x_3$	$+0.62x_4$	$+0.38x_5$	$+1.25x_6$ $+0.12x_{10}$
x_{11}	39.0	$+7.00x_1$	$-3.00x_2$	$-5.00x_3$	$-10.00x_4$		$-1.00x_6$ $-1.00x_{10}$
x_{12}	3.0	$+2.25x_1$	$+3.50x_2$	$-8.38x_3$	$-5.12x_4$	$-8.88x_5$	$+9.75x_6$ $+0.38x_{10}$
x_{13}	4.0	$-6.25x_1$	$-0.50x_2$	$-6.62x_3$	$+7.12x_4$	$+2.88x_5$	$+6.25x_6$ $+0.62x_{10}$
z	0.0	$-3.00x_1$	$+2.00x_2$	$+3.00x_3$			$-1.00x_6$

x_2 enters and x_7 leaves

x_8	24.0	$-3.00x_1$	$-1.00x_7$	$+0.50x_3$	$+1.50x_4$	$+0.50x_5$	$-6.00x_6$ $-0.50x_{10}$
x_9	20.0	$+3.00x_1$	$+3.00x_7$	$-2.50x_3$	$-4.50x_4$	$-8.50x_5$	$-12.00x_6$ $-0.50x_{10}$
x_2	2.0	$-0.50x_1$	$-2.00x_7$	$-0.25x_3$	$+1.25x_4$	$+0.75x_5$	$+2.50x_6$ $+0.25x_{10}$
x_{11}	33.0	$+8.50x_1$	$+6.00x_7$	$-4.25x_3$	$-13.75x_4$	$-2.25x_5$	$-8.50x_6$ $-1.75x_{10}$
x_{12}	10.0	$+0.50x_1$	$-7.00x_7$	$-9.25x_3$	$-0.75x_4$	$-6.25x_5$	$+18.50x_6$ $+1.25x_{10}$
x_{13}	3.0	$-6.00x_1$	$+1.00x_7$	$-6.50x_3$	$+6.50x_4$	$+2.50x_5$	$+5.00x_6$ $+0.50x_{10}$
z	4.0	$-4.00x_1$	$-4.00x_7$	$+2.50x_3$	$+2.50x_4$	$+1.50x_5$	$+4.00x_6$ $+0.50x_{10}$

x_3 enters and x_{13} leaves

x_8	24.2307692308	$-3.46x_1$	$-0.92x_7$	$-0.08x_{13}$	$+2.00x_4$	$+0.69x_5$	$-5.62x_6$ $-0.46x_{10}$
x_9	18.8461538462	$+5.31x_1$	$+2.62x_7$	$+0.38x_{13}$	$-7.00x_4$	$-9.46x_5$	$-13.92x_6$ $-0.69x_{10}$
x_2	1.88461538462	$-0.27x_1$	$-2.04x_7$	$+0.04x_{13}$	$+1.00x_4$	$+0.65x_5$	$+2.31x_6$ $+0.23x_{10}$
x_{11}	31.0384615385	$+12.42x_1$	$+5.35x_7$	$+0.65x_{13}$	$-18.00x_4$	$-3.88x_5$	$-11.77x_6$ $-2.08x_{10}$
x_{12}	5.73076923077	$+9.04x_1$	$-8.42x_7$	$+1.42x_{13}$	$-10.00x_4$	$-9.81x_5$	$+11.38x_6$ $+0.54x_{10}$
x_3	0.461538461538	$-0.92x_1$	$+0.15x_7$	$-0.15x_{13}$	$+1.00x_4$	$+0.38x_5$	$+0.77x_6$ $+0.08x_{10}$
z	5.15384615385	$-6.31x_1$	$-3.62x_7$	$-0.38x_{13}$	$+5.00x_4$	$+2.46x_5$	$+5.92x_6$ $+0.69x_{10}$

x_4 enters and x_{12} leaves

x_8	25.3769230769	$-1.65x_1\ -2.61x_7\ +0.21x_{13}\ -0.20x_{12}\ -1.27x_5\ -3.34x_6\ -0.35x_{10}$
x_9	14.8346153846	$-1.02x_1\ +8.51x_7\ -0.61x_{13}\ +0.70x_{12}\ -2.60x_5\ -21.89x_6\ -1.07x_{10}$
x_2	2.45769230769	$+0.63x_1\ -2.88x_7\ +0.18x_{13}\ -0.10x_{12}\ -0.33x_5\ +3.45x_6\ +0.28x_{10}$
x_{11}	20.7230769231	$-3.85x_1\ +20.51x_7\ -1.91x_{13}\ +1.80x_{12}\ +13.77x_5\ -32.26x_6\ -3.05x_{10}$
x_4	0.573076923077	$+0.90x_1\ -0.84x_7\ +0.14x_{13}\ -0.10x_{12}\ -0.98x_5\ +1.14x_6\ +0.05x_{10}$
x_3	1.03461538462	$-0.02x_1\ -0.69x_7\ -0.01x_{13}\ -0.10x_{12}\ -0.60x_5\ +1.91x_6\ +0.13x_{10}$
z	8.01923076923	$-1.79x_1\ -7.83x_7\ +0.33x_{13}\ -0.50x_{12}\ -2.44x_5\ +11.62x_6\ +0.96x_{10}$

x_6 enters and x_{11} leaves

x_8	23.2324749642	$-1.26x_1\ -4.73x_7\ +0.41x_{13}\ -0.39x_{12}\ -2.69x_5\ +0.10x_{11}\ -0.04x_{10}$
x_9	0.77217453505	$+1.59x_1\ -5.40x_7\ +0.68x_{13}\ -0.52x_{12}\ -11.94x_5\ +0.68x_{11}\ +1.00x_{10}$
x_2	4.67131616595	$+0.22x_1\ -0.69x_7\ -0.02x_{13}\ +0.09x_{12}\ +1.14x_5\ -0.11x_{11}\ -0.04x_{10}$
x_6	0.64234620887	$-0.12x_1\ +0.64x_7\ -0.06x_{13}\ +0.06x_{12}\ +0.43x_5\ -0.03x_{11}\ -0.09x_{10}$
x_4	1.30436337625	$+0.77x_1\ -0.12x_7\ +0.07x_{13}\ -0.04x_{12}\ -0.49x_5\ -0.04x_{11}\ -0.05x_{10}$
x_3	2.26001430615	$-0.25x_1\ +0.52x_7\ -0.12x_{13}\ +0.01x_{12}\ +0.22x_5\ -0.06x_{11}\ -0.05x_{10}$
z	15.4803290415	$-3.17x_1\ -0.44x_7\ -0.36x_{13}\ +0.15x_{12}\ +2.52x_5\ -0.36x_{11}\ -0.14x_{10}$

x_5 enters and x_9 leaves

x_8	23.0582420545	$-1.61x_1\ -3.51x_7\ +0.25x_{13}\ -0.27x_{12}\ +0.23x_9\ -0.05x_{11}\ -0.26x_{10}$
x_5	0.0646723447594	$+0.13x_1\ -0.45x_7\ +0.06x_{13}\ -0.04x_{12}\ -0.08x_9\ +0.06x_{11}\ +0.08x_{10}$
x_2	4.74529460515	$+0.38x_1\ -1.21x_7\ +0.04x_{13}\ +0.04x_{12}\ -0.10x_9\ -0.04x_{11}\ +0.05x_{10}$
x_6	0.669948377949	$-0.06x_1\ +0.44x_7\ -0.03x_{13}\ +0.04x_{12}\ -0.04x_9\ -0.01x_{11}\ -0.06x_{10}$
x_4	1.27235873831	$+0.70x_1\ +0.11x_7\ +0.05x_{13}\ -0.01x_{12}\ +0.04x_9\ -0.06x_{11}\ -0.10x_{10}$
x_3	2.27411608471	$-0.22x_1\ +0.43x_7\ -0.11x_{13}\ -0.00x_{12}\ -0.02x_9\ -0.05x_{11}\ -0.03x_{10}$
z	15.6429890865	$-2.84x_1\ -1.58x_7\ -0.22x_{13}\ +0.04x_{12}\ -0.21x_9\ -0.22x_{11}\ +0.08x_{10}$

x_{10} enters and x_6 leaves

x_8	20.0503059143	$-1.33x_1\ -5.50x_7\ +0.41x_{13}\ -0.44x_{12}\ +0.39x_9\ -0.02x_{11}\ +4.49x_6$
x_5	1.01767505099	$+0.04x_1\ +0.18x_7\ +0.01x_{13}\ +0.01x_{12}\ -0.13x_9\ +0.05x_{11}\ -1.42x_6$
x_2	5.37049626105	$+0.32x_1\ -0.80x_7\ +0.01x_{13}\ +0.08x_{12}\ -0.13x_9\ -0.05x_{11}\ -0.93x_6$
x_{10}	11.4031271244	$-1.06x_1\ +7.53x_7\ -0.59x_{13}\ +0.63x_{12}\ -0.61x_9\ -0.11x_{11}\ -17.02x_6$
x_4	0.188987083617	$+0.80x_1\ -0.61x_7\ +0.10x_{13}\ -0.07x_{12}\ +0.10x_9\ -0.05x_{11}\ +1.62x_6$
x_3	1.91910265126	$-0.18x_1\ +0.19x_7\ -0.09x_{13}\ -0.02x_{12}\ +0.00x_9\ -0.04x_{11}\ +0.53x_6$
z	16.4983004759	$-2.92x_1\ -1.02x_7\ -0.26x_{13}\ +0.09x_{12}\ -0.26x_9\ -0.23x_{11}\ -1.28x_6$

x_{12} enters and x_4 leaves

x_8	18.9523809524	$-6.00x_1$	$-1.95x_7$	$-0.19x_{13}$	$+5.81x_4$	$-0.19x_9$	$+0.29x_{11}$	$-4.90x_6$
x_5	1.04081632653	$+0.14x_1$	$+0.10x_7$	$+0.02x_{13}$	$-0.12x_4$	$-0.12x_9$	$+0.04x_{11}$	$-1.22x_6$
x_2	5.56462585034	$+1.14x_1$	$-1.42x_7$	$+0.12x_{13}$	$-1.03x_4$	$-0.03x_9$	$-0.10x_{11}$	$+0.73x_6$
x_{10}	12.9977324263	$+5.71x_1$	$+2.38x_7$	$+0.28x_{13}$	$-8.44x_4$	$+0.23x_9$	$-0.56x_{11}$	$-3.38x_6$
x_{12}	2.52154195011	$+10.71x_1$	$-8.14x_7$	$+1.37x_{13}$	$-13.34x_4$	$+1.32x_9$	$-0.70x_{11}$	$+21.58x_6$
x_3	1.86167800454	$-0.43x_1$	$+0.38x_7$	$-0.12x_{13}$	$+0.30x_4$	$-0.03x_9$	$-0.03x_{11}$	$+0.04x_6$
z	16.7142857143	$-2.00x_1$	$-1.71x_7$	$-0.14x_{13}$	$-1.14x_4$	$-0.14x_9$	$-0.29x_{11}$	$+0.57x_6$

x_6 enters and x_5 leaves

x_8	14.7833333333	$-6.57x_1$	$-2.36x_7$	$-0.27x_{13}$	$+6.30x_4$	$+0.30x_9$	$+0.12x_{11}$	$+4.01x_5$
x_6	0.85	$+0.12x_1$	$+0.08x_7$	$+0.02x_{13}$	$-0.10x_4$	$-0.10x_9$	$+0.03x_{11}$	$-0.82x_5$
x_2	6.18333333333	$+1.23x_1$	$-1.36x_7$	$+0.13x_{13}$	$-1.10x_4$	$-0.10x_9$	$-0.08x_{11}$	$-0.59x_5$
x_{10}	10.1277777778	$+5.32x_1$	$+2.10x_7$	$+0.22x_{13}$	$-8.10x_4$	$+0.57x_9$	$-0.67x_{11}$	$+2.76x_5$
x_{12}	20.8611111111	$+13.23x_1$	$-6.34x_7$	$+1.73x_{13}$	$-15.50x_4$	$-0.83x_9$	$+0.02x_{11}$	$-17.62x_5$
x_3	1.89444444444	$-0.42x_1$	$+0.38x_7$	$-0.12x_{13}$	$+0.30x_4$	$-0.03x_9$	$-0.03x_{11}$	$-0.03x_5$
z	17.2	$-1.93x_1$	$-1.67x_7$	$-0.13x_{13}$	$-1.20x_4$	$-0.20x_9$	$-0.27x_{11}$	$-0.47x_5$

Final Dictionary Solution: 17.2 Num Pivots: 9