| | | $x_1$ | $x_2$ | $x_3$ | $x_4$ | $x_5$ | $x_6$ | $x_7$ | $x_8$ |
|---|---|---|---|---|---|---|---|---|---|
| $x_9$ | 12.0 | $+1.000000x_1$ | $-2.000000x_2$ | $+2.000000x_3$ | | $-1.000000x_5$ | $+1.000000x_6$ | | $+1.000000x_8$ |
| $x_{10}$ | 9.0 | $+1.000000x_1$ | $-1.000000x_2$ | $+2.000000x_3$ | $-3.000000x_4$ | $+2.000000x_5$ | $-2.000000x_6$ | $-2.000000x_7$ | $-1.000000x_8$ |
| $x_{11}$ | 6.0 | $-3.000000x_1$ | $-3.000000x_2$ | $+1.000000x_3$ | $-3.000000x_4$ | | $+3.000000x_6$ | $-2.000000x_7$ | $-1.000000x_8$ |
| $x_{12}$ | 4.0 | $-2.000000x_1$ | $+3.000000x_2$ | $-1.000000x_3$ | $-2.000000x_4$ | $-3.000000x_5$ | $-1.000000x_6$ | $-2.000000x_7$ | $+3.000000x_8$ |
| $x_{13}$ | 14.0 | $+1.000000x_1$ | | $-3.000000x_3$ | $-3.000000x_4$ | $+2.000000x_5$ | $+1.000000x_6$ | $-2.000000x_7$ | $-3.000000x_8$ |
| $x_{14}$ | 15.0 | $+2.000000x_1$ | | $-3.000000x_3$ | $-1.000000x_4$ | | $+1.000000x_6$ | | $-2.000000x_8$ |
| $x_{15}$ | 13.0 | $-3.000000x_1$ | $-2.000000x_2$ | $-3.000000x_3$ | $-2.000000x_4$ | $-1.000000x_5$ | $-3.000000x_6$ | $+1.000000x_7$ | $-3.000000x_8$ |
| $x_{16}$ | 8.0 | $-2.000000x_1$ | $-2.000000x_2$ | $-3.000000x_3$ | $+2.000000x_4$ | $-3.000000x_5$ | $+1.000000x_6$ | $+2.000000x_7$ | $-2.000000x_8$ |
| $x_{17}$ | 5.0 | $-3.000000x_1$ | $+1.000000x_2$ | $-1.000000x_3$ | $+2.000000x_4$ | $-1.000000x_5$ | $-1.000000x_6$ | $+3.000000x_7$ | $-3.000000x_8$ |
| $x_{18}$ | 3.0 | | $-3.000000x_2$ | $+3.000000x_3$ | $-2.000000x_4$ | $-2.000000x_5$ | $-1.000000x_6$ | $+3.000000x_7$ | $-1.000000x_8$ |
| $x_{19}$ | 9.0 | $-2.000000x_1$ | $+3.000000x_2$ | $-2.000000x_3$ | $+1.000000x_4$ | $-2.000000x_5$ | $+2.000000x_6$ | $-2.000000x_7$ | |
| $x_{20}$ | 2.0 | $-1.000000x_1$ | $+1.000000x_2$ | $+1.000000x_3$ | $-2.000000x_4$ | $-3.000000x_5$ | $-1.000000x_6$ | $+1.000000x_7$ | |
| $x_{21}$ | 11.0 | $-2.000000x_1$ | $+1.000000x_2$ | $-3.000000x_3$ | | $-3.000000x_5$ | $+2.000000x_6$ | $+2.000000x_7$ | $+2.000000x_8$ |
| $x_{22}$ | 11.0 | $-3.000000x_1$ | $+2.000000x_2$ | $-2.000000x_3$ | $-3.000000x_4$ | | $+1.000000x_6$ | $-2.000000x_7$ | $-2.000000x_8$ |
| $x_{23}$ | 5.0 | $-1.000000x_1$ | $+3.000000x_2$ | | $+2.000000x_4$ | $+1.000000x_5$ | | $-2.000000x_7$ | $+1.000000x_8$ |
| $z$ | 0.0 | | | $-1.000000x_3$ | $+2.000000x_4$ | $-2.000000x_5$ | | $-1.000000x_7$ | $-1.000000x_8$ |

No initialization required $-¿$ Proceed to Optimize.

| | | $x_1$ | $x_2$ | $x_3$ | $x_4$ | $x_5$ | $x_6$ | $x_7$ | $x_8$ |
|---|---|---|---|---|---|---|---|---|---|
| $x_9$ | 12.0 | $+1.000000x_1$ | $-2.000000x_2$ | $+2.000000x_3$ | | $-1.000000x_5$ | $+1.000000x_6$ | | $+1.000000x_8$ |
| $x_{10}$ | 9.0 | $+1.000000x_1$ | $-1.000000x_2$ | $+2.000000x_3$ | $-3.000000x_4$ | $+2.000000x_5$ | $-2.000000x_6$ | $-2.000000x_7$ | $-1.000000x_8$ |
| $x_{11}$ | 6.0 | $-3.000000x_1$ | $-3.000000x_2$ | $+1.000000x_3$ | $-3.000000x_4$ | | $+3.000000x_6$ | $-2.000000x_7$ | $-1.000000x_8$ |
| $x_{12}$ | 4.0 | $-2.000000x_1$ | $+3.000000x_2$ | $-1.000000x_3$ | $-2.000000x_4$ | $-3.000000x_5$ | $-1.000000x_6$ | $-2.000000x_7$ | $+3.000000x_8$ |
| $x_{13}$ | 14.0 | $+1.000000x_1$ | | $-3.000000x_3$ | $-3.000000x_4$ | $+2.000000x_5$ | $+1.000000x_6$ | $-2.000000x_7$ | $-3.000000x_8$ |
| $x_{14}$ | 15.0 | $+2.000000x_1$ | | $-3.000000x_3$ | $-1.000000x_4$ | | $+1.000000x_6$ | | $-2.000000x_8$ |
| $x_{15}$ | 13.0 | $-3.000000x_1$ | $-2.000000x_2$ | $-3.000000x_3$ | $-2.000000x_4$ | $-1.000000x_5$ | $-3.000000x_6$ | $+1.000000x_7$ | $-3.000000x_8$ |
| $x_{16}$ | 8.0 | $-2.000000x_1$ | $-2.000000x_2$ | $-3.000000x_3$ | $+2.000000x_4$ | $-3.000000x_5$ | $+1.000000x_6$ | $+2.000000x_7$ | $-2.000000x_8$ |
| $x_{17}$ | 5.0 | $-3.000000x_1$ | $+1.000000x_2$ | $-1.000000x_3$ | $+2.000000x_4$ | $-1.000000x_5$ | $-1.000000x_6$ | $+3.000000x_7$ | $-3.000000x_8$ |
| $x_{18}$ | 3.0 | | $-3.000000x_2$ | $+3.000000x_3$ | $-2.000000x_4$ | $-2.000000x_5$ | $-1.000000x_6$ | $+3.000000x_7$ | $-1.000000x_8$ |
| $x_{19}$ | 9.0 | $-2.000000x_1$ | $+3.000000x_2$ | $-2.000000x_3$ | $+1.000000x_4$ | $-2.000000x_5$ | $+2.000000x_6$ | $-2.000000x_7$ | |
| $x_{20}$ | 2.0 | $-1.000000x_1$ | $+1.000000x_2$ | $+1.000000x_3$ | $-2.000000x_4$ | $-3.000000x_5$ | $-1.000000x_6$ | $+1.000000x_7$ | |
| $x_{21}$ | 11.0 | $-2.000000x_1$ | $+1.000000x_2$ | $-3.000000x_3$ | | $-3.000000x_5$ | $+2.000000x_6$ | $+2.000000x_7$ | $+2.000000x_8$ |
| $x_{22}$ | 11.0 | $-3.000000x_1$ | $+2.000000x_2$ | $-2.000000x_3$ | $-3.000000x_4$ | | $+1.000000x_6$ | $-2.000000x_7$ | $-2.000000x_8$ |
| $x_{23}$ | 5.0 | $-1.000000x_1$ | $+3.000000x_2$ | | $+2.000000x_4$ | $+1.000000x_5$ | | $-2.000000x_7$ | $+1.000000x_8$ |
| $z$ | 0.0 | | | $-1.000000x_3$ | $+2.000000x_4$ | $-2.000000x_5$ | | $-1.000000x_7$ | $-1.000000x_8$ |

$x_4$ enters and $x_{20}$ leaves

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$$x_9 \quad 12.0 \quad +1.000000x_1 -2.000000x_2 +2.000000x_3 \qquad\qquad\qquad -1.000000x_5 +1.000000x_6 \qquad\qquad +1.000000x_8$$

$$x_{10} \quad 6.0 \quad +2.500000x_1 -2.500000x_2 +0.500000x_3 +1.500000x_{20} +6.500000x_5 -0.500000x_6 -3.500000x_7 -1.000000x_8$$

$$x_{11} \quad 3.0 \quad -1.500000x_1 -4.500000x_2 -0.500000x_3 +1.500000x_{20} +4.500000x_5 +4.500000x_6 -3.500000x_7 -1.000000x_8$$

$$x_{12} \quad 2.0 \quad -1.000000x_1 +2.000000x_2 -2.000000x_3 +1.000000x_{20} \qquad\qquad\qquad\qquad -3.000000x_7 +3.000000x_8$$

$$x_{13} \quad 11.0 \quad +2.500000x_1 -1.500000x_2 -4.500000x_3 +1.500000x_{20} +6.500000x_5 +2.500000x_6 -3.500000x_7 -3.000000x_8$$

$$x_{14} \quad 14.0 \quad +2.500000x_1 -0.500000x_2 -3.500000x_3 +0.500000x_{20} +1.500000x_5 +1.500000x_6 -0.500000x_7 -2.000000x_8$$

$$x_{15} \quad 11.0 \quad -2.000000x_1 -3.000000x_2 -4.000000x_3 +1.000000x_{20} +2.000000x_5 -2.000000x_6 \qquad\qquad -3.000000x_8$$

$$x_{16} \quad 10.0 \quad -3.000000x_1 -1.000000x_2 -2.000000x_3 -1.000000x_{20} -6.000000x_5 \qquad\qquad +3.000000x_7 -2.000000x_8$$

$$x_{17} \quad 7.0 \quad -4.000000x_1 +2.000000x_2 \qquad\qquad -1.000000x_{20} -4.000000x_5 -2.000000x_6 +4.000000x_7 -3.000000x_8$$

$$x_{18} \quad 1.0 \quad +1.000000x_1 -4.000000x_2 +2.000000x_3 +1.000000x_{20} +1.000000x_5 \qquad\qquad +2.000000x_7 -1.000000x_8$$

$$x_{19} \quad 10.0 \quad -2.500000x_1 +3.500000x_2 -1.500000x_3 -0.500000x_{20} -3.500000x_5 +1.500000x_6 -1.500000x_7$$

$$x_4 \quad 1.0 \quad -0.500000x_1 +0.500000x_2 +0.500000x_3 -0.500000x_{20} -1.500000x_5 -0.500000x_6 +0.500000x_7$$

$$x_{21} \quad 11.0 \quad -2.000000x_1 +1.000000x_2 -3.000000x_3 \qquad\qquad -3.000000x_5 +2.000000x_6 +2.000000x_7 +2.000000x_8$$

$$x_{22} \quad 8.0 \quad -1.500000x_1 +0.500000x_2 -3.500000x_3 +1.500000x_{20} +4.500000x_5 +2.500000x_6 -3.500000x_7 -2.000000x_8$$

$$x_{23} \quad 7.0 \quad -2.000000x_1 +4.000000x_2 +1.000000x_3 -1.000000x_{20} -2.000000x_5 -1.000000x_6 -1.000000x_7 +1.000000x_8$$

$$z \quad 2.0 \quad -1.000000x_1 +1.000000x_2 \qquad\qquad -1.000000x_{20} -5.000000x_5 -1.000000x_6 \qquad\qquad -1.000000x_8$$

$x_2$ enters and $x_{18}$ leaves

$$x_9 \quad 11.5 \quad +0.500000x_1 +0.500000x_{18} +1.000000x_3 -0.500000x_{20} -1.500000x_5 +1.000000x_6 -1.000000x_7 +1.500000x_8$$

$$x_{10} \quad 5.375 \quad +1.875000x_1 +0.625000x_{18} -0.750000x_3 +0.875000x_{20} +5.875000x_5 -0.500000x_6 -4.750000x_7 -0.375000x_8$$

$$x_{11} \quad 1.875 \quad -2.625000x_1 +1.125000x_{18} -2.750000x_3 +0.375000x_{20} +3.375000x_5 +4.500000x_6 -5.750000x_7 +0.125000x_8$$

$$x_{12} \quad 2.5 \quad -0.500000x_1 -0.500000x_{18} -1.000000x_3 +1.500000x_{20} +0.500000x_5 \qquad\qquad -2.000000x_7 +2.500000x_8$$

$$x_{13} \quad 10.625 \quad +2.125000x_1 +0.375000x_{18} -5.250000x_3 +1.125000x_{20} +6.125000x_5 +2.500000x_6 -4.250000x_7 -2.625000x_8$$

$$x_{14} \quad 13.875 \quad +2.375000x_1 +0.125000x_{18} -3.750000x_3 +0.375000x_{20} +1.375000x_5 +1.500000x_6 -0.750000x_7 -1.875000x_8$$

$$x_{15} \quad 10.25 \quad -2.750000x_1 +0.750000x_{18} -5.500000x_3 +0.250000x_{20} +1.250000x_5 -2.000000x_6 -1.500000x_7 -2.250000x_8$$

$$x_{16} \quad 9.75 \quad -3.250000x_1 +0.250000x_{18} -2.500000x_3 -1.250000x_{20} -6.250000x_5 \qquad\qquad +2.500000x_7 -1.750000x_8$$

$$x_{17} \quad 7.5 \quad -3.500000x_1 -0.500000x_{18} +1.000000x_3 -0.500000x_{20} -3.500000x_5 -2.000000x_6 +5.000000x_7 -3.500000x_8$$

$$x_2 \quad 0.25 \quad +0.250000x_1 -0.250000x_{18} +0.500000x_3 +0.250000x_{20} +0.250000x_5 \qquad\qquad +0.500000x_7 -0.250000x_8$$

$$x_{19} \quad 10.875 \quad -1.625000x_1 -0.875000x_{18} +0.250000x_3 +0.375000x_{20} -2.625000x_5 +1.500000x_6 +0.250000x_7 -0.875000x_8$$

$$x_4 \quad 1.125 \quad -0.375000x_1 -0.125000x_{18} +0.750000x_3 -0.375000x_{20} -1.375000x_5 -0.500000x_6 +0.750000x_7 -0.125000x_8$$

$$x_{21} \quad 11.25 \quad -1.750000x_1 -0.250000x_{18} -2.500000x_3 +0.250000x_{20} -2.750000x_5 +2.000000x_6 +2.500000x_7 +1.750000x_8$$

$$x_{22} \quad 8.125 \quad -1.375000x_1 -0.125000x_{18} -3.250000x_3 +1.625000x_{20} +4.625000x_5 +2.500000x_6 -3.250000x_7 -2.125000x_8$$

$$x_{23} \quad 8.0 \quad -1.000000x_1 -1.000000x_{18} +3.000000x_3 \qquad\qquad -1.000000x_5 -1.000000x_6 +1.000000x_7$$

$$z \quad 2.25 \quad -0.750000x_1 -0.250000x_{18} +0.500000x_3 -0.750000x_{20} -4.750000x_5 -1.000000x_6 +0.500000x_7 -1.250000x_8$$

$x_3$ enters and $x_{11}$ leaves

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $x_9$ | 12.1818181818 | $-0.454545x_1$ | $+0.909091x_{18}$ | $-0.363636x_{11}$ | $-0.363636x_{20}$ | $-0.272727x_5$ | $+2.636364x_6$ | $-3.090909x_7$ | $+$ |
| $x_{10}$ | 4.86363636364 | $+2.590909x_1$ | $+0.318182x_{18}$ | $+0.272727x_{11}$ | $+0.772727x_{20}$ | $+4.954545x_5$ | $-1.727273x_6$ | $-3.181818x_7$ | $-$ |
| $x_3$ | 0.681818181818 | $-0.954545x_1$ | $+0.409091x_{18}$ | $-0.363636x_{11}$ | $+0.136364x_{20}$ | $+1.227273x_5$ | $+1.636364x_6$ | $-2.090909x_7$ | $+$ |
| $x_{12}$ | 1.81818181818 | $+0.454545x_1$ | $-0.909091x_{18}$ | $+0.363636x_{11}$ | $+1.363636x_{20}$ | $-0.727273x_5$ | $-1.636364x_6$ | $+0.090909x_7$ | $+$ |
| $x_{13}$ | 7.04545454545 | $+7.136364x_1$ | $-1.772727x_{18}$ | $+1.909091x_{11}$ | $+0.409091x_{20}$ | $-0.318182x_5$ | $-6.090909x_6$ | $+6.727273x_7$ | $-$ |
| $x_{14}$ | 11.3181818182 | $+5.954545x_1$ | $-1.409091x_{18}$ | $+1.363636x_{11}$ | $-0.136364x_{20}$ | $-3.227273x_5$ | $-4.636364x_6$ | $+7.090909x_7$ | $-$ |
| $x_{15}$ | 6.5 | $+2.500000x_1$ | $-1.500000x_{18}$ | $+2.000000x_{11}$ | $-0.500000x_{20}$ | $-5.500000x_5$ | $-11.000000x_6$ | $+10.000000x_7$ | $-$ |
| $x_{16}$ | 8.04545454545 | $-0.863636x_1$ | $-0.772727x_{18}$ | $+0.909091x_{11}$ | $-1.590909x_{20}$ | $-9.318182x_5$ | $-4.090909x_6$ | $+7.727273x_7$ | $-$ |
| $x_{17}$ | 8.18181818182 | $-4.454545x_1$ | $-0.090909x_{18}$ | $-0.363636x_{11}$ | $-0.363636x_{20}$ | $-2.272727x_5$ | $-0.363636x_6$ | $+2.909091x_7$ | $-$ |
| $x_2$ | 0.590909090909 | $-0.227273x_1$ | $-0.045455x_{18}$ | $-0.181818x_{11}$ | $+0.318182x_{20}$ | $+0.863636x_5$ | $+0.818182x_6$ | $-0.545455x_7$ | $-$ |
| $x_{19}$ | 11.0454545455 | $-1.863636x_1$ | $-0.772727x_{18}$ | $-0.090909x_{11}$ | $+0.409091x_{20}$ | $-2.318182x_5$ | $+1.909091x_6$ | $-0.272727x_7$ | $-$ |
| $x_4$ | 1.63636363636 | $-1.090909x_1$ | $+0.181818x_{18}$ | $-0.272727x_{11}$ | $-0.272727x_{20}$ | $-0.454545x_5$ | $+0.727273x_6$ | $-0.818182x_7$ | $-$ |
| $x_{21}$ | 9.54545454545 | $+0.636364x_1$ | $-1.272727x_{18}$ | $+0.909091x_{11}$ | $-0.090909x_{20}$ | $-5.818182x_5$ | $-2.090909x_6$ | $+7.727273x_7$ | $+$ |
| $x_{22}$ | 5.90909090909 | $+1.727273x_1$ | $-1.454545x_{18}$ | $+1.181818x_{11}$ | $+1.181818x_{20}$ | $+0.636364x_5$ | $-2.818182x_6$ | $+3.545455x_7$ | $-$ |
| $x_{23}$ | 10.0454545455 | $-3.863636x_1$ | $+0.227273x_{18}$ | $-1.090909x_{11}$ | $+0.409091x_{20}$ | $+2.681818x_5$ | $+3.909091x_6$ | $-5.272727x_7$ | $+$ |
| $z$ | 2.59090909091 | $-1.227273x_1$ | $-0.045455x_{18}$ | $-0.181818x_{11}$ | $-0.681818x_{20}$ | $-4.136364x_5$ | $-0.181818x_6$ | $-0.545455x_7$ | $-$ |

$x_{-1}$ enters and Final Dictionary Solution: 2.59090909091 Num Pivots: 3