

Math 4620/5620

PRACTICE PROBLEM FOR THE FINAL

Consider the following linear program (from HW2):

$$\begin{aligned} \max \quad & x_1 + 2x_2 - x_3 \\ \text{s. t.} \quad & 2x_1 + 2x_2 - 2x_3 \leq 10 \\ & 3x_1 - 2x_2 + 2x_3 \leq 5 \\ & x_1 - 4x_2 + x_3 \leq 10 \\ & x_1, x_2, x_3 \geq 0 \end{aligned}$$

and the simplex tableau after several iterations:

	x_1	x_2	x_3	x_4	x_5	x_6	
z	1	0	-1	1	0	0	10
x_2	1	1	-1	$\frac{1}{2}$	0	0	5
x_5	5	0	0	1	1	0	15
x_6	5	0	-3	2	0	1	30

Make a **single** change in the **original** data (that is, matrix A and vectors b, c) so that the new problem has an optimal solution (no simplex iterations are necessary to answer the question).