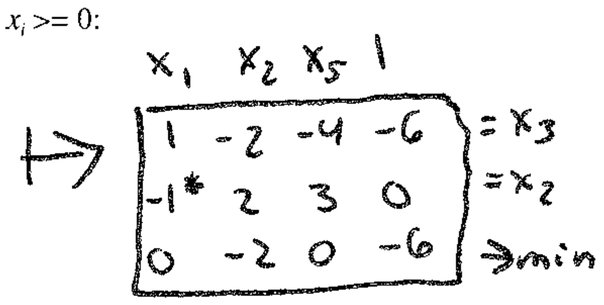
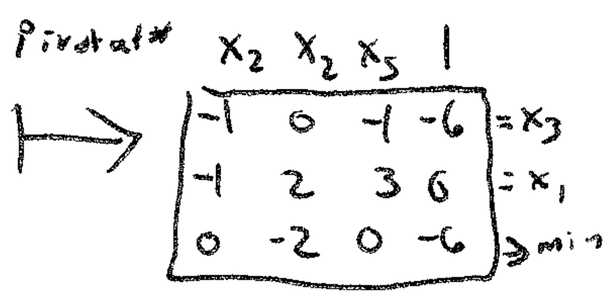
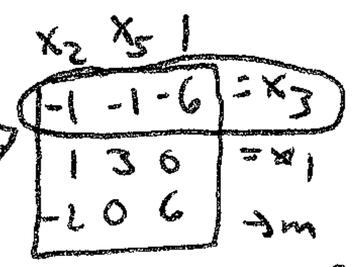
Math 484.1. November 4, 2010. Midterm 2.
5 problems, 15 pts each. Write your name here Evan D. Reese and on the other side.
Write down how you got your answer.

1--2. Solve linear programs where all $x_i >= 0$:

x_1	x_2	-2	$-x_5$	Problem 1
1	-2	3	4	$= x_3$
1	-2	0	3	$= -x_2$
0	2	-3	0	--> max





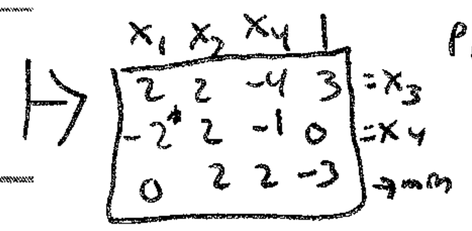


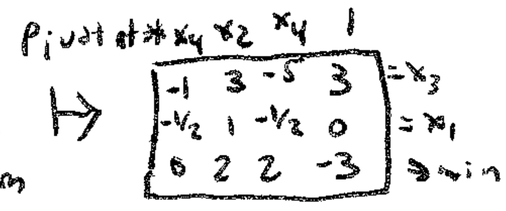
Pivot at *

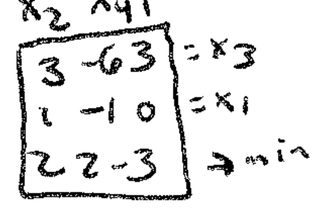
Row 1 is Bad so LP infeasible

min = ∞
max = -∞

$2x_1$	$-x_2$	1	$-x_4$	Problem 2
1	-2	3	4	$= x_3$
1	2	0	-1	$= -x_4$
0	-2	-3	-2	--> min







so min = -3 at $x_2 = x_4 = 0$, $x_3 = 3$, $x_1 = 6$

Solved in phase 1

min = 41

3. Solve transportation problem

2	1	3	2	1	2	1 6	2	1 3	9
1 6	2	3	1	1	1	1	3	1 2	8
2	2	1 6	3	1 2	1	3	5	2 1	9
5	1 1	3	1 1	2 4	1 1	2	3 1	4	8
6	1	6	1	6	1	6	1	6	dem \ sup

4. Solve transportation problem

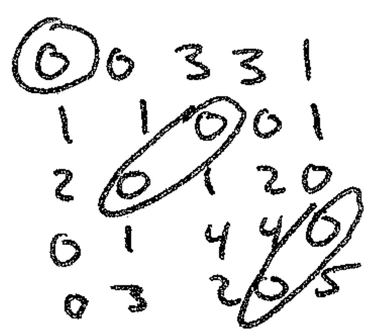
3	1 1	3	2	1 2	2	2	2	1 6	9
1 6	1	3	1	1	5	1 2	3	1	8
2	2	0 6	3	1 3	1	3	1	2	9
2	3	5	1 1	2 1	1 1	2 4	0 1	2	8
6	1	6	1	6	1	6	1	6	dem \ sup

Solved in phase 1

min = 32

5. Solve job assignment problem

1 *	2	3	4	2
2	3	0 *	1	2
3	2 *	1	3	1
1	3	4	5	1 *
1	5	2	1 *	6



1 worker at each * min = 1+2+0+1+1 = 5 = min