Derik Tomlinson Midterm 2, Solutions 1-3

## Problem 1:

<b>x</b> 1	-2x <sub>2</sub>	-x <sub>1</sub>	1	Problem 1
2	2	1	4	= x <sub>1</sub>
5	6	7	8	= -x <sub>3</sub>
1	0	1	2	-> max

Divide column two by -2, multiply row one by -1, multiply column four by -1. Pivot. Bad column, max = infinity, unbounded. Final Tableaux:

x3	x2	x1	-1	
-0.4	-0.2	-1.8	7.2	-x1
-0.2	-0.6	-1.4	1.6	-x1
0.2	0.6	0.4	0.4	max

## Problem 2:

<i>x</i> 1	x2	x3	x4	x5	-1	Problem 2
1	2	-3	-5	6	-2	= -x <sub>6</sub>
0	10-100	-2	0	-3	1	= x7
-1	0	2	4	-4	2	= x8
2	0	3	1	1	2	$=f \rightarrow \max$

Multiply row two and three by -1. Pivot. Bad column, max = infinity, unbounded. Final Tableaux:

x1	x5	x3	x7	x6	-1	
0.5	-1.68885E+16	-1.1259E+16	-5.6295E+15	-0.5	5.63E+15	-x2
0	-6.7554E+15	-4.5036E+15	-2.2518E+15	0	2.25E+15	-x4
1	-2.70216E+16	-1.80144E+16	-9.0072E+15	0	9.01E+15	-x8
2	6.7554E+15	4.5036E+15	2.2518E+15	0	-2.25E+15	max

## Problem 3:

<i>x</i> 1	x2	-1	Problem 3
1	0	1	= - <i>x</i> <sub>3</sub>
0	1	1	= - <i>x</i> <sub>4</sub>
2	2	3	= - <i>x</i> <sub>5</sub>
3	4	0	-> max

Pivot. Optimal Tableaux acquired. x5 = x4 = 0,  $x3 = \frac{1}{2}$ , x2 = 1,  $x1 = \frac{1}{2}$ , max = -6 Final Tableaux:

x5	x4	-1	
-0.5	1	0.5	-x3
0	1	1	-x2
0.5	-1	0.5	-x1
-2	0	-6	max