# University of Waterloo

## **DEPARTMENT OF MANAGEMENT SCIENCES**

MSCI 331 Introduction to Optimization

Class Activities Simplex

1) Consider the following LP:

$$MAX \quad z = 3x_1 + 3x_2 + 100$$

s.t.

$$x_1 + x_2 \le 4$$

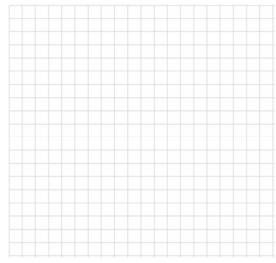
$$x_1 + 2x_2 \le 6$$

$$2x_1 - 3x_2 \le 2$$

$$- x_1 + 2x_2 \le 4$$

$$x_1, x_2 \ge 0$$

Use the geometric approach to solve the LP model.



2) Use the Simplex method to solve the LP model.

Row	Basic Variable					
0						
1						
2						
3						
4						

Row	Basic Variable					
0						
1						
2						
3						
4						

Row	Basic Variable					
0						
1						
2						
3						
4						

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Row  Basic Variable    0     1     2										
1										
2										
3										
4										
Row Basic Variable										
0										
1										
2										
3										
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Row Basic Variable										
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0										
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3										
4										

What are the optimal solution and value? Comment on the optimal solution.