Math 212 Finite Mathematics

Instructions: **Show work** in order to receive partial credit. The problems are based on topics

covered in chapter two. The number within the parentheses represents the point

value. The total number of points possible is ten.

1. (4) Construct the augmented matrix for the following system of three equations in three

unknowns. Do not solve the system.

2x – y + z = 10

4x + 2y – 3z = 10

x – 3y + 2z = 8

2. (4) Use the Gauss-Jordan method to solve the following system of equations.

5x + 3y = 19

2x – 5y = 11

Math 212 Finite Mathematics

Page 2

3. (4) Construct the objective function and the system of inequalities for the given situation.

Remember to define the variables first. Do not solve the system.

*Johnson Lumber can convert logs into either lumber or plywood. In a given week, the mill can*

*turn out 400 units of production, of which 100 units of lumber and 150 units of plywood are*

*required by regular customers. The profit on a unit of lumber is $20 and on a unit of plywood*

*is $30.*

4. (4) Construct the simplex plateau for the objective function and the system of inequalities.

z = 7x + 8y

Subject to

3x + 2y ≤ 12

-x + 2y ≤ 4

x ≥ 0 and y ≥ 0

Math 212 Finite Mathematics

Page 3

5. (4) Below is the simplex tableau for a linear programming problem.

x y s1 s2 z C

5 3 1 0 0 34

3 5 0 1 0 30

-2 -14 0 0 1 0

a) Identify the pivot column.

b) Determine the pivot and the row in which it occurs.