

MATH 1310 Matrices for Management and Social Sciences

Assignment 2

- [16] 1. Use the corner point method to solve the following linear programming problems.
- (a) Find the maximum value of $Z = 7x + 5y$ subject to the following constraints:
 $7x + 4y \leq 53$, $2x + 7y \geq 21$, $2x - 3y \geq -18$, $x \geq 0$, $y \geq 0$
- (b) Find the minimum value of $Z = 4x + 3y$ subject to the following constraints:
 $x + y \geq 15$, $2x + y \geq 23$, $15x + 4y \geq 120$, $x \geq 0$, $y \geq 0$
- [10] 2. A trucker is asked to deliver 2 kinds of desks to a furniture store. The standard desk weighs 50 kilos and the deluxe desk weighs 75 kilos. The truck has a capacity of at most 30 desks. In addition, weight restrictions only allow for the truck to carry at most 1800 kilos. If the trucker receives \$15 for each standard desk and \$20 for each deluxe desk that he delivers, how many desks of each type should he carry in order to maximize his income?
- [14] 3. Use the simplex algorithm to find the maximum value of $p = 8x + 8y + 12z$ subject to the constraints:
 $x + y + z \leq 40$, $2x + y + 3z \leq 90$, $3x + 2y + 4z \leq 84$, $x \geq 0$, $y \geq 0$, $z \geq 0$.