

Dr. Z.'s Math 354 REAL Quiz #2

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. (8 pts.) Formulate the following problem as a linear programming problem. State all the constraints and state the goal function.

A certain computer maker has three factories. In City 1, City 2, and City 3. it also has two stores, in City 1', and City 2'.

- The factory in City 1 produces 2500 computers per week.
- The factory in City 2 produces 2000 computers per week.
- The factory in City 3 produces 1500 computers per week.
- The store in City 1' sells 4000 computers per week.
- The store in City 2' sells 2000 computers per week.
- The distances from City 1' to City 1, City 2, City 3 are 1000, 1500, and 1200 miles respectively
- The distances from City 2' to City 1, City 2, City 3 are 1400, 1100, and 900 miles respectively

Assume that the cost of transportation is proportional to the distance. Let x_{ij} be the number of computers shipped from City i to City j' ($i = 1, 2, 3, j = 1, 2$). You want to decide how many computers to ship from each factory to each store so as to minimize the transportation cost.