Wilf Csaplar Jr. ECON/BUSI 205 Homework #6 **Due Friday 4/6**

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. If you use double-sided printing or write on the back of scrap paper, I will give you one additional point.

Show all work for all questions which have work.

1) (20 points) Suppose that \$1 worth of agriculture requires 20¢ of agriculture, 10¢ of energy, and 30¢ of machinery. \$1 worth of energy requires 40¢ of energy and 20¢ of machinery. \$1 of machinery uses 10¢ of agriculture, 35¢ of energy, and 10¢ of machinery. Write the Leontief Input-Output matrix briefly stating how you got it. Later in the semester, we will be using the matrix gotten from I - A where I is the identity matrix and A is the matrix you just created. Do the calculation I - A.

2) Use the following matrices to do the requested calculations in the questions below.

$$A=\begin{bmatrix}2 & 3 & 1\\ 1 & 0 & -2\\ -1 & -3 & 5\end{bmatrix}, B=\begin{bmatrix}2 & 0 & 3\\ 1 & 1 & -2\\ 4 & 0 & 5\end{bmatrix}, C=\begin{bmatrix}10 & 5 & 2\end{bmatrix}, D=\begin{bmatrix}1\\ 2\\ 3\end{bmatrix}$$

A) (15 points) A-2B
B) (10 points) CA
C) (10 points) BD
D) (25 points) AB

3) (20 points) Suppose that you sell 10 umbrellas on Monday, 5 on Tuesday, 0 on Wednesday, 2 on Thursday, and 7 on Friday. You also sold no sun screen on Monday, 2 bottles on Tuesday, 8 on Wednesday, 4 on Thursday, and 1 on Friday. Setup a matrix which contains that data. Setup another matrix to represent that umbrellas cost \$20 each and sun screen costs \$5/bottle. Briefly state how you got both matrices. Multiply them such that the resulting matrix shows how much revenue you get each day.