

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.

1A) (10 points) Solve the system of equations $Q^D = 10 - \frac{1}{2}P$ and $Q^S = P - 4$ using the graphing method.

1B) (10 points) Solve the same system using the substitution and elimination method.

2) (10 points) Solve the following system of equations using row operations on the equations. (This is the IS/LM model which you will be getting in ECON 302.)

$$\text{LM: } r = 1 + .02Y \quad \text{IS: } r = 4 - .01Y$$

3) (20 points) Set up the following equations in a partitioned matrix. Use row operations to get it into reduced row-echelon form. Then find the solution.

$$\begin{aligned} Q_1^D &= 28 - P_1 - 2P_2 - P_3 & Q_1^S &= -1 + 21P_1 \\ Q_2^D &= 25 - 2P_1 - P_2 - 2P_3 & Q_2^S &= -2 + 17P_2 \\ Q_3^D &= 17 - 2P_1 - P_2 - P_3 & Q_3^S &= -2 + 12P_3 \end{aligned}$$

4) (20 points) Set up the following equations in a partitioned matrix. Use row operations to get it into reduced row-echelon form. Then find the solution.

$$3X + 4Y + Z = 13 \quad 7X - Y + 2Z = 27 \quad X - 9Y = 1$$

5) (20 points) Set up the following equations in a partitioned matrix. Use row operations to get it into reduced row-echelon form. Then find the solution.

$$3X - 2Y + Z = 10 \quad 2X + Z = 2 \quad 7X - 2Y + 3Z = 0$$

6) (10 points) Solve the following system of equations by putting it into a partitioned matrix and getting it into reduced row echelon form. Solve it.

$$5X + 3Y = 0 \quad X - Y = 0$$