Wilf Csaplar Jr. Economics 205 Homework #8 **Due Wednesday 4/8 by 11:00 AM**

Do NOT write your name anywhere. (Canvas will tell me who turned in the assignment.) Take pictures of your answers and use your own software or https://pdfcandy.com/ to create a single PDF. (pdfcandy.com will convert JPG to PDF, resize PDF, merge PDF and just about anything else you can think of with a PDF for free.) Upload that to Canvas. Upload each answer as a separate file with that question. Failure to follow these directions will cost you 10 points.

Show all work for all questions.

1) (15 points) Write the following system of equations in the **Ax** = **b** form. Find $\mathbf{A}^{-1}$ and use that to solve the equations. $Q_D = 2000 - 50P$ $Q_S = 100P - 1000$.

2) (15 points) Write the following system of equations in the **Ax** = **b** form. Find $\mathbf{A}^{-1}$ and use that to solve the equations. $r = 30 - Y/100$ $r = 5 + Y/400$.

3) (10 points) For a generic 2x2 matrix, prove that swapping the two rows will change the sign of the determinant.

4) (5 points) Find |**A**| for $\mathbf{A}=\begin{bmatrix} 4 & 9 & 3 & -1 & 7 \\ 0 & 2 & 5 & 1 & 5 \\ 0 & 0 & -1 & 8 & 3 \\ 0 & 0 & 0 & 10 & 7 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$ Hint: It is only 5 points.

6) (15 points) Suppose $\mathbf{A} = \begin{bmatrix} 2 & -2 \\ 4 & 5 \end{bmatrix}$. Find |**A**|. Suppose **B** is gotten by subtracting twice the first row from the second row. Find |**B**|.

7) (20 points) Find |**A**| if $\mathbf{A} = \begin{bmatrix} 2 & 1 & 3 \\ 0 & -1 & 4 \\ -2 & 0 & 5 \end{bmatrix}$

8) (20 points) Find |**A**| if $\mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 0 & -2 & 1 \end{bmatrix}$