Problem Set #4

ECON 407: Mathematical Economics

(**due next class**)

1. Find the minors and cofactors of the third row, given

$$A=\left[\begin{matrix}9&11&4\\3&2&7\\6&10&4\end{matrix}\right]$$

2. Show that, when all the elements of an *n*th-order determinant $|A|$ are multiplied by a scalar $k$, the result will be $k^{n}|A|$.

3. Give the name and a one sentence explanation of the determinant property that allows us to write the following:

a) $\left|\begin{matrix}9&18\\27&56\end{matrix}\right|=\left|\begin{matrix}9&18\\0&2\end{matrix}\right|$

b) $\left|\begin{matrix}9&27\\4&2\end{matrix}\right|=18\left|\begin{matrix}1&3\\2&1\end{matrix}\right|$

4. Determine if the following matrix is nonsingular.

$$A=\left[\begin{matrix}4&-2&1\\-5&6&0\\7&0&3\end{matrix}\right]$$

5. Solve the system $Ax=d$ by matrix inversion (do not use Cramer’s rule),

$$4x+3y=28$$

$$2x+5y=42$$