LINEAR ALGEBRA
FALL 2013

ASSIGNMENT 6.2
DUE OCTOBER 16

Exercise 1. Recall that for 2×2 matrices we have the inversion formula

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix},$$

provided that $ad - bc \neq 0$. Using the expression for the inverse of a matrix in terms of its cofactors and determinant, find a similar inversion formula for the generic 3×3 matrix

$$A = \begin{pmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{pmatrix}.$$

Although I do expect you to explicitly work out the necessary cofactors, you can simply write $\det A$ for the determinant of A.