MATH 260, Homework 5, Spring '14
Due: February 14, 2014
Honor Code: **Name:**

1) (15 pts) Using the algorithm we learned in class ($[\mathbf{A}|\mathbf{I}] \to \cdots \to [\mathbf{I}|\mathbf{A}^{-1}]$), show that the inverse of the generic 2×2 matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ is $\frac{1}{ad-bc}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$.

2) (10 pts) Consider the matrix $\mathbf{A}$. Note that a is a real number constant.

$$\mathbf{A} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & a \\ 0 & 0 & 1 \end{bmatrix}$$

a) Find $\mathbf{A}^{-1}$.

b) Verify that $\mathbf{A}\mathbf{A}^{-1} = \mathbf{A}^{-1}\mathbf{A} = \mathbf{I}$.