Mathematics 124 (Winter 2009)
Warm-up Exercises for February 3, 2009

Suppose that $A = \begin{bmatrix} 2 & -1 \\ 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -2 \\ -1 & 1 \end{bmatrix}$.

(a) Compute $\det(A)$, $\det(B)$, $A + B$, AB, and BA modulo 26.

(b) Compute $A^{-1} \operatorname{MOD} 26$ and $B^{-1} \operatorname{MOD} 26$.

(c) Solve $A \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \end{bmatrix} \operatorname{MOD} 26$.