

**Problem 1:** Let

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$$

$$B = \begin{pmatrix} 1 & 2 \\ 0 & 1 \end{pmatrix}$$

Compute, if valid:

a)  $AB$

b)  $BA$

c)  $(BB^{-1})A$

**Problem 2:** Find the inverse of

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

**Problem 3:** Is there a matrix,  $D$ , such that

$$D \begin{pmatrix} 1 & 1 \\ 0 & 0 \end{pmatrix} = I_2?$$

Why or why not?