Name:

MATH221
test #2, 10/27/16
Sections 1.8–1.9, 2.1-2.3
Total 100

Show all work legibly.

1. (20) Let $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$. Find A^{-1} if exists.

$A^{-1} =$.

2. (20) Let $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$. If B is a 2×3 matrix so that $AB = C = \begin{bmatrix} 6 & 1 & 2 \\ 3 & 4 & 5 \end{bmatrix}$. Find B.

$B =$

3. (20) Let $A = \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$. Identify all 2×3 matrices X that solve $AX = \begin{bmatrix} 4 & 5 & 6 \\ 4 & 5 & 6 \end{bmatrix}$.

$X =$

4. (40) Let $T : \mathbf{R}^2 \to \mathbf{R}^2$ be a linear transformation so that $T(\mathbf{e}_1) = \mathbf{e}_2$, and $T(\mathbf{e}_2) = \mathbf{e}_1$.

   (a) (10) Find A the standard matrix of the transformation.

$A =$

(b) (15) True or False? T is one-to-one.

Mark one and explain.

▫ True ▫ False

(c) (15) True or False? T is onto.

Mark one and explain.

▫ True ▫ False