Math 3160 - Quiz 3

Name:_____

1. Compute the inverses for the following matrices
$A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 3 \\ 0 & 0 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 2 & 3 \\ 1 & 2 & 3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$

2. Compute the indicated operation

   (a) Let A, B, C and D be invertible nxn matrices. Compute $(ABDC)(C^{-1}D^{-1}A^{-1}B^{-1})$.

   (b) Compute $\begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 3 \\ 0 & 0 & 3 \end{bmatrix}^2$

   (c) Compute $\begin{bmatrix} 0 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & 4 \end{bmatrix}^{-4}$

3. Solve the following linear system using matrices. That is, define a matrix A and b so that the system is represtnteted by $AX = b$. And Find A^{-1} and use that inverse to solve for X.
$\begin{cases} 2x & -2y & = 2 \\ 4x & -3y & = 2 \end{cases}$