

# Homework Solutions

## Sec 4.5

15, 31, 49, 69

15  $IM = M$  so  $\begin{bmatrix} -2 & 1 & 3 \\ 2 & 4 & -2 \\ 5 & 1 & 0 \end{bmatrix}$

31 No inverse because the matrix is not square.

49  $\begin{bmatrix} 4 & 3 \\ -3 & -2 \end{bmatrix}^{-1} = \frac{1}{-8+9} \begin{bmatrix} -2 & -3 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} -2 & -3 \\ 3 & 4 \end{bmatrix}$   
 $\hookrightarrow = 1$

69  $A^{-1} = \frac{1}{8-9} \begin{bmatrix} 2 & -3 \\ -3 & 4 \end{bmatrix} = \begin{bmatrix} -2 & 3 \\ 3 & -4 \end{bmatrix}$   
 $\hookrightarrow = -1$

$$(A^{-1})^{-1} = \begin{bmatrix} -2 & 3 \\ 3 & -4 \end{bmatrix}^{-1} = \frac{1}{8-9} \begin{bmatrix} -4 & -3 \\ -3 & -2 \end{bmatrix} = \begin{bmatrix} 4 & 3 \\ 3 & 2 \end{bmatrix}$$

$\hookrightarrow = -1$

$$= A$$

