Subject: Session 11 Problems

Year. Month. Date. ( )

1 (a)

$$|A| = +1 \cdot \begin{vmatrix} 4 & 0 \\ 2 & 5 \end{vmatrix} - 2 \begin{vmatrix} 1 & 0 \\ 2 & 5 \end{vmatrix} + 1 \begin{vmatrix} 1 & 4 \\ 2 & 1 \end{vmatrix}$$

$$= 20 - 10 + -7 = 3$$

Minors: $\begin{pmatrix} 20 & 5 & -7 \\ 9 & 3 & -3 \\ -4 & -1 & 2 \end{pmatrix}$

Cofactor + Transpose: $\begin{pmatrix} 20 & -9 & -4 \\ -5 & 3 & 1 \\ -7 & 3 & 2 \end{pmatrix} = \text{adj}(A)$

$$A^{-1} = \frac{1}{3} \text{adj}(A)$$

(b) $\begin{pmatrix} 8/3 \\ -2/3 \\ -1/3 \end{pmatrix}$

2 (a) $\begin{pmatrix} a & b \\ c & d \end{pmatrix}^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$

(b) ✓

(c) $\begin{pmatrix} 6 & 5 \\ 1 & 2 \end{pmatrix}^{-1} = \frac{1}{7} \begin{pmatrix} 2 & -5 \\ -1 & 6 \end{pmatrix}$