Name: Solutions Date: _____

MATH 208 **Quiz 4**

1) Using Cramer's Rule, find the inverse of $\begin{bmatrix} 5 & 8 \\ 3 & 5 \end{bmatrix}$

Let $A = \begin{bmatrix} 5 & 8 \\ 3 & 5 \end{bmatrix}$

$$A^{-1} = \frac{1}{25-24}\begin{bmatrix} 5 & -8 \\ -3 & 5 \end{bmatrix} = \begin{bmatrix} 5 & -8 \\ -3 & 5 \end{bmatrix}$$

2) Solve the matrix equation

$$\begin{bmatrix} 5 & 8 \\ 3 & 5 \end{bmatrix}\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$$

$$Ax = b$$

$$A^{-1}Ax = A^{-1}b$$

$$x = A^{-1}b$$

$$X = \begin{bmatrix} 5 & -8 \\ -3 & 5 \end{bmatrix}\begin{bmatrix} -1 \\ 1 \end{bmatrix} = \begin{bmatrix} -5-8 \\ 3+5 \end{bmatrix} = \begin{bmatrix} -13 \\ 8 \end{bmatrix}$$

2×2 2×1 2×1