Math 220, Quiz 5 Section 8 Name:_____

ID Number:_____

Instructions: Clearly answer each of the questions below. Remember to check the back side. Show your work and any formulas you employ. Simplify all answers as far as possible.

1. (1 pt) Calculate $\begin{vmatrix} -5 & 0 & 0 & 0 \\ 0 & -6 & 0 & 0 \\ -2 & 1 & 8 & 0 \\ 1 & 7 & 8 & -2 \end{vmatrix}$ -480

2. (1 pt) Calculate $\begin{vmatrix} 3 & -2 & 3 \\ 0 & 0 & 2 \\ -3 & 2 & -3 \end{vmatrix}$ 0

3. (2 pts) What two determinants would you need to calculate if you were using Cramer's rule to calculate x_2, when $\begin{bmatrix} 2 & -8 & -1 \\ 0 & 5 & -3 \\ -4 & 9 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_2 \end{bmatrix} = \begin{bmatrix} -3 \\ -17 \\ -23 \end{bmatrix}$? (DO NOT SOLVE !)

$$x_2 = \frac{\begin{vmatrix} 2 & -3 & -1 \\ 0 & -17 & -3 \\ -4 & -23 & -2 \end{vmatrix}}{\begin{vmatrix} 2 & -8 & -1 \\ 0 & 5 & -3 \\ -4 & 9 & -2 \end{vmatrix}}$$

4. (2 pts) The linear transformation $T(\vec{x}) = A\vec{x}$ where $A = \frac{1}{5}\begin{bmatrix} 4 & -3 \\ -3 & -4 \end{bmatrix}$ is a reflection. Find the line of symmetry of this reflection, given in parametric vector form.

$$\vec{x} = x_2 \begin{bmatrix} 3 \\ -1 \end{bmatrix}$$

5. (2 pts) Calculate $\begin{vmatrix} 2 & -2 & 3 \\ 2 & 0 & 2 \\ 3 & 2 & -3 \end{vmatrix}$.

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