Accelerated Pre-Calculus – Unit 5 Pop Quiz 2: Solving with Matrices

Name: _____ Date: _____ Period: _____

**Show and label all work. Do not use a calculator; leave answers in exact form. Circle final answer.* (2 points each)*

$A = \begin{bmatrix} -2 & 7 \\ 1 & 8 \end{bmatrix}$ $B = \begin{bmatrix} 12 & -9 \\ -4 & 3 \end{bmatrix}$ $C = \begin{bmatrix} 2 & 3 & -1 \\ -4 & -5 & 2 \\ 6 & 1 & 3 \end{bmatrix}$ $D = \begin{bmatrix} c & c & c \\ 0 & c & c \\ 0 & 0 & c \end{bmatrix}$

1.) Find $|A|$ if it exists. If it doesn't, explain why.

2.) Find A^{-1} if it exists. If it doesn't, explain why.

3.) Find $|C|$ if it exists. If it doesn't, explain why.

4.) Find B^{-1} if it exists. If it doesn't, explain why.

5.) Find $|D|$ if it exists. If it doesn't, explain why.

6.) Given the following matrix X and product XY, find matrix Y.

$X = \begin{bmatrix} 8 & -4 \\ 3 & 6 \end{bmatrix}$ $XY = \begin{bmatrix} 36 & 48 \\ -24 & 48 \end{bmatrix}$

For #7-9, use the following table and information:

A craft store orders beads from three different vendors, A, B, and C. One month, the store ordered a total of 150 units of beads from these vendors. The shipping charges are as shown below.

Vendor	A	B	C
Charge per unit ($)	35	40	30

The total deliver cost was $5375. The store ordered twice the number of units of beads from vendor C than in ordered from vendor A.

7.) Write a system of equations representing this situation.

8.) Write the system of equations that you found in part (a) as a matrix equation.

9.) Solve the system that you found in part (b) to determine how many units of beads were purchased from each of the vendors.

10.) ΔRST has the following coordinates for vertices: $R(6,-1),\ S\ (2,9), and\ T(-3,-1)$.
Find the area of ΔRST using matrices ***and*** *one additional method*.

EXTRA CREDIT (1 point each):

a.) Write the matrix that will reflect a coordinate matrix over the line $y = x$.

b.) Write the matrix that will rotate a coordinate matrix $90°$counterclockwise.