Name: ____ Period: __________ Date: _______________

Matrix Multiplication, Inverses, and Determinants Exit Quiz

Part A Instructions: Choose the option that completes the sentence or answers the question.

1. **If the dimensions of a matrix A are $r \times k$, and the dimensions of matrix B are $k \times s$, the dimensions of AB will be:**

    a. $r \times k$
    b. $r \times s$
    c. $k \times k$
    d. None of these

2. **If the determinant of a matrix is zero, then the matrix is:**

    a. Identity
    b. Invertible
    c. Non-Invertible
    d. None of these

3. **A matrix in which all the entries on the main diagonal equal 1 and all the other entries are zero, is known as:**

    a. Row matrix
    b. Square matrix
    c. Identity
    d. None of these

4. **The determinant of the matrix $A = \begin{bmatrix} 4 & -1 \\ 2 & 5 \end{bmatrix}$ is:**

    a. 18
    b. 22
    c. 12
    d. None of these

Part B Instructions: Answer the question below.

5. **Find the inverse of matrix $A = \begin{bmatrix} 11 & 5 \\ 2 & 1 \end{bmatrix}$ if it exists.**

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Answers

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4. **The determinant of the matrix $A = \begin{bmatrix} 4 & -1 \\ 2 & 5 \end{bmatrix}$ is:**

   a. 18
   b. 22
   c. 12
   d. None of these

Part B Instructions: Answer the question below.

5. **Find the inverse of matrix $A = \begin{bmatrix} 11 & 5 \\ 2 & 1 \end{bmatrix}$ if it exists.**

$$det(A) = 11(1) - 2(5) = 11 - 10 = 1$$

Since $det(A) \neq 0$, A is invertible.

$$A^{-1} = \frac{1}{det(A)} \begin{bmatrix} 1 & -5 \\ -2 & 11 \end{bmatrix}$$

$$A^{-1} = \frac{1}{1} \begin{bmatrix} 1 & -5 \\ -2 & 11 \end{bmatrix}$$

$$\rightarrow A^{-1} = \begin{bmatrix} 1 & -5 \\ -2 & 11 \end{bmatrix}$$