

Finding the Inverse of a 2 by 2 Matrix

Name _____

Date _____ Period _____

Given the following 2x2 matrix...

we can find the **inverse matrix** of A ,

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$A^{-1} = \frac{1}{\det A} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

The **Inverse Matrix**1. Find **Determinant** of Original Matrix3. Calculate the **Inverse**

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$A^{-1} =$$

2. Create the other matrix to multiply.

$$\begin{bmatrix} & \\ & \end{bmatrix}$$

Flip the a and d .Change the sign of b and c .

Find the **inverse** of the following **matrix**

$$A = \begin{bmatrix} 2 & 1 \\ 3 & 1 \end{bmatrix}$$

1. Find **Determinant** of Original **Matrix**

2. Create the other Matrix

The **Inverse** of **Matrix A**,

$$A^{-1} = \frac{1}{\det A} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

3. Calculate the **Inverse**

Find the **inverse** of the following **matrix**

$$A = \begin{bmatrix} 3 & 1 \\ 4 & 2 \end{bmatrix}$$

1. Find **Determinant** of Original **Matrix**

2. Create the other Matrix

The **Inverse** of **Matrix A**,

$$A^{-1} = \frac{1}{\det A} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

3. Calculate the **Inverse**

Find the **inverse** of the following **matrix**

$$A = \begin{bmatrix} -4 & 1 \\ 6 & -2 \end{bmatrix}$$

1. Find **Determinant** of Original **Matrix**

2. Create the other Matrix

3. Calculate the **Inverse**

The **Inverse** of **Matrix A**,

$$A^{-1} = \frac{1}{\det A} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

The **Inverse Matrix**

1. Find **Determinant** of Original Matrix

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix} = \det A$$

2. Create the other matrix to multiply.

$$\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

Flip the **a** and **d**.
Change the sign of **b** and **c**.

3. Calculate the **Inverse**

$$A^{-1} = \frac{1}{\det A} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$