

Name Key

Mathematics 1553

Quiz 5

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Section HP1 / HP2

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1. Find the inverse of the matrix

$$A^{-1} = \frac{1}{ad-bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$
$$A^{-1} = \frac{1}{49-48} \begin{bmatrix} 7 & -8 \\ -6 & 7 \end{bmatrix}$$

$$A = \begin{pmatrix} 7 & 8 \\ 6 & 7 \end{pmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} 7 & -8 \\ -6 & 7 \end{bmatrix}$$

Use your answer from the previous question to solve the equation

$$\begin{pmatrix} 7 & 8 \\ 6 & 7 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 13 \\ 11 \end{pmatrix}$$

$$Ax = b$$

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

$$x = \begin{bmatrix} 7 & -8 \\ -6 & 7 \end{bmatrix} \begin{bmatrix} 13 \\ 11 \end{bmatrix}$$

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

Suppose that A , B , C , and X are invertible $n \times n$ matrices. Solve for X :

$$B(A+X)C = A$$

$$(A+X)C = B^{-1}A$$

$$A+X = B^{-1}AC^{-1}$$

$$X = B^{-1}AC^{-1} - A$$