Matrices Practice

Name: _____ Date: _____

Question 1

Determine the dimensions

I. $\begin{bmatrix} 3 & 5 \\ -1 & 1 \end{bmatrix}$

II. $\begin{bmatrix} 0 & 1 \\ 3 & 9 \\ 4 & 4 \end{bmatrix}$

III. $\begin{bmatrix} 1 & 2 & 0 & 5 \end{bmatrix}$

IV. $\begin{bmatrix} 4 \\ 6 \\ 9 \end{bmatrix}$

Question 2

Solve

I. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} + \begin{bmatrix} -2 & 4 \\ 8 & 6 \end{bmatrix} =$

II. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} - \begin{bmatrix} -2 & 4 \\ 8 & 6 \end{bmatrix} =$

III.

$A = \begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix}$

$8A =$

IV. $\begin{bmatrix} -1 & 0 & 8 \\ -2 & -3 & 5 \end{bmatrix} \times \begin{bmatrix} 1 \\ -7 \\ 2 \end{bmatrix} =$

Matrices Practice

Question 3

Convert

I. $\begin{bmatrix} 2 & 1 & 0 \\ 3 & -1 & 6 \\ 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -1 \\ 11 \\ 2 \end{bmatrix}$

Question 4

Determine the determinant of the matrix

I. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} =$

II. $\begin{bmatrix} 2 & 1 & 0 \\ 3 & -1 & 6 \\ 1 & 1 & 1 \end{bmatrix} =$

Matrices Practice

Name: **Key** Date: _____

Question 1

Determine the dimensions

I. $\begin{bmatrix} 3 & 5 \\ -1 & 1 \end{bmatrix}$ 2×2

II. $\begin{bmatrix} 0 & 1 \\ 3 & 9 \\ 4 & 4 \end{bmatrix}$ 3×2

III. $\begin{bmatrix} 1 & 2 & 0 & 5 \end{bmatrix}$ 1×4

IV. $\begin{bmatrix} 4 \\ 6 \\ 9 \end{bmatrix}$ 3×1

Question 2

Solve

I. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} + \begin{bmatrix} -2 & 4 \\ 8 & 6 \end{bmatrix} = \begin{bmatrix} 3+-2 & 5+4 \\ -9+8 & 7+6 \end{bmatrix} = \begin{bmatrix} 1 & 9 \\ -1 & 13 \end{bmatrix}$

II. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} - \begin{bmatrix} -2 & 4 \\ 8 & 6 \end{bmatrix} = \begin{bmatrix} 3--2 & 5-4 \\ -9-8 & 7-6 \end{bmatrix} = \begin{bmatrix} 5 & 1 \\ -17 & 1 \end{bmatrix}$

III.

$A = \begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix}$

$8A = \begin{bmatrix} 8(3) & 8(5) \\ 8(-9) & 8(7) \end{bmatrix} = \begin{bmatrix} 24 & 40 \\ -72 & 56 \end{bmatrix}$

IV. $\begin{bmatrix} -1 & 0 & 8 \\ -2 & -3 & 5 \end{bmatrix} \times \begin{bmatrix} 1 \\ -7 \\ 2 \end{bmatrix} = \begin{bmatrix} -1(1)+0(-7)+8(2) \\ -2(1)+-3(-7)+5(2) \end{bmatrix} = \begin{bmatrix} 15 \\ 29 \end{bmatrix}$

2×3 ✓ 3×1 ✓

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Question 3

Convert

I. $\begin{bmatrix} 2 & 1 & 0 \\ 3 & -1 & 6 \\ 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -1 \\ 11 \\ 2 \end{bmatrix}$

$\begin{bmatrix} 2(x) + 1(y) + 0(z) \\ 3(x) + -1(y) + 6(z) \\ 1(x) + 1(y) + 1(z) \end{bmatrix} = \begin{bmatrix} -1 \\ 11 \\ 2 \end{bmatrix}$

$\begin{bmatrix} 2x + 1y \\ 3x - 1y + 6z \\ 1x + 1y + 1z \end{bmatrix} = \begin{bmatrix} -1 \\ 11 \\ 2 \end{bmatrix}$

$2x + 1y = -1$

$3x - 1y + 6z = 11$

$1x + 1y + 1z = 2$

Question 4

Determine the determinant of the matrix

I. $\begin{bmatrix} 3 & 5 \\ -9 & 7 \end{bmatrix} = 3(7) - -9(5) = 66$

II. $\begin{bmatrix} 2 & 1 & 0 \\ 3 & -1 & 6 \\ 1 & 1 & 1 \end{bmatrix} = 2\begin{bmatrix} -1 & 6 \\ 1 & 1 \end{bmatrix} - 3\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix} + 1\begin{bmatrix} 1 & 0 \\ -1 & 6 \end{bmatrix}$

$= 2(-1(1) - 1(6)) - 3(1(1) - 1(0)) + 1(1(6) - -1(0))$

$= -11$