Math worksheet on *'Matrices - Find Inverse from Simplified Augmented Matrix (3x3) (Level 1)'*. Part of a broader unit on *'Matrices'*

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1 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} -4 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0.5 & 0 & 0 & 1 & 0 \\ 0 & 0 & -0.5 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 0.38 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$

b $\begin{bmatrix} -0.25 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & -2 \end{bmatrix}$

c $undefined$

d $\begin{bmatrix} 0.21 & 0 & 0 \\ 0 & -0.03 & 0 \\ 0 & 0 & 0.03 \end{bmatrix}$

e $\begin{bmatrix} 0.25 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$

f $\begin{bmatrix} -0.5 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & -4 \end{bmatrix}$

2 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 4 & 0 & 1 & 0 \\ 0 & 4 & 0 & 0 & 0 & 1 \end{array}\right]$$

a $undefined$

b $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 0 & 0.5 \\ 0 & 0.5 & 0 \end{bmatrix}$

c $\begin{bmatrix} -1.25 & 0 & 0 \\ 0 & 0 & -0.31 \\ 0 & -0.31 & 0 \end{bmatrix}$

d $\begin{bmatrix} -0.5 & 0 & 0 \\ 0 & 0 & -0.12 \\ 0 & -0.12 & 0 \end{bmatrix}$

e $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0.25 \\ 0 & 0.25 & 0 \end{bmatrix}$

f $\begin{bmatrix} -1 & 0 & 0 \\ 0 & 0 & -4 \\ 0 & -4 & 0 \end{bmatrix}$

3 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 0 & -2 & 0 & 1 & 0 & 0 \\ -3 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 0 & -0.33 & 0 \\ -0.5 & 0 & -1 \\ 0 & 1 & 1 \end{bmatrix}$

b $\begin{bmatrix} 0 & 12 & 0 \\ 18 & 0 & 0 \\ 0 & 0 & -6 \end{bmatrix}$

c $\begin{bmatrix} 0 & 2 & 0 \\ 3 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$

d $\begin{bmatrix} 0 & 0.18 & 0 \\ 0.27 & 0 & 0 \\ 0 & 0 & -0.09 \end{bmatrix}$

e $\begin{bmatrix} 0 & -0.33 & 0 \\ -0.5 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

f $\begin{bmatrix} 0 & -0.25 & 0 \\ -0.38 & 0 & 0 \\ 0 & 0 & 0.75 \end{bmatrix}$

4 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 3 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 & 0 \\ 6 & 0 & 1 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 0.17 & 0 & 0 \\ 0 & 0.5 & 0 \\ -1 & 0 & 0.5 \end{bmatrix}$

b $\begin{bmatrix} 2 & 4 & 2 \\ 3 & 9 & 6 \\ 2 & 8 & 3 \end{bmatrix}$

c $\begin{bmatrix} -1.5 & 0 & 0 \\ 0 & -0.5 & 0 \\ -3 & 0 & -0.5 \end{bmatrix}$

d $\begin{bmatrix} -0.5 & 0 & 0 \\ 0 & -1.5 & 0 \\ 3 & 0 & -1.5 \end{bmatrix}$

e $\begin{bmatrix} -0.08 & 0 & 0 \\ 0 & -0.25 & 0 \\ 0.5 & 0 & -0.25 \end{bmatrix}$

f $\begin{bmatrix} 0.33 & 0 & 0 \\ 0 & 1 & 0 \\ -2 & 0 & 1 \end{bmatrix}$

5 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 0 & -3 & 0 & 1 & 0 & 0 \\ 3 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 0 & -27 & 0 \\ 27 & 0 & 0 \\ 0 & 0 & 9 \end{bmatrix}$

b $\begin{bmatrix} 0 & 0.33 & 0 \\ -0.33 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

c $\begin{bmatrix} 0 & -0.1 & 0 \\ 0.1 & 0 & 0 \\ 0 & 0 & 0.03 \end{bmatrix}$

d $\begin{bmatrix} 0 & -0.21 & 0 \\ 0.21 & 0 & 0 \\ 0 & 0 & 0.07 \end{bmatrix}$

e $\begin{bmatrix} 2 & 9 & 9 \\ 5 & 0 & 4 \\ 4 & 0 & 5 \end{bmatrix}$

f $\begin{bmatrix} 0 & -0.17 & 0 \\ 0.17 & 0 & 0 \\ 0 & 0 & -0.5 \end{bmatrix}$

6 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 1 & 8 & 0 & 1 & 0 & 0 \\ 0 & 4 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 4 & 32 & 0 \\ 0 & 16 & 0 \\ 0 & 0 & 4 \end{bmatrix}$

b $\begin{bmatrix} -0.06 & -0.5 & 0 \\ 0 & -0.25 & 0 \\ 0 & 0 & -0.06 \end{bmatrix}$

c $\begin{bmatrix} 0.05 & 0.42 & 0 \\ 0 & 0.21 & 0 \\ 0 & 0 & 0.05 \end{bmatrix}$

d $\begin{bmatrix} 1.25 & -2.5 & 0 \\ 0 & 0.31 & 0 \\ 0 & 0 & 1.25 \end{bmatrix}$

e $\begin{bmatrix} 1 & -2 & 0 \\ 0 & 0.25 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

f $\begin{bmatrix} 0.11 & 0.89 & 0 \\ 0 & 0.44 & 0 \\ 0 & 0 & 0.11 \end{bmatrix}$

7 Find the inverse of this augmented matrix by doing the required row operations

$$\left[\begin{array}{ccc|ccc} 2 & 0 & 0 & 1 & 0 & 0 \\ 0 & 2 & 0 & 0 & 1 & 0 \\ 6 & 6 & 1 & 0 & 0 & 1 \end{array}\right]$$

a $\begin{bmatrix} 8 & 0 & 0 \\ 0 & 8 & 0 \\ 24 & 24 & 4 \end{bmatrix}$

b $undefined$

c $\begin{bmatrix} -0.25 & 0 & 0 \\ 0 & -0.25 & 0 \\ 1.5 & 1.5 & -0.5 \end{bmatrix}$

d $\begin{bmatrix} -0.38 & 0 & 0 \\ 0 & -0.38 & 0 \\ 2.25 & 2.25 & -0.75 \end{bmatrix}$

e $\begin{bmatrix} 0.5 & 0 & 0 \\ 0 & 0.5 & 0 \\ -3 & -3 & 1 \end{bmatrix}$

f $\begin{bmatrix} 0.14 & 0 & 0 \\ 0 & 0.14 & 0 \\ 0.43 & 0.43 & 0.07 \end{bmatrix}$