

COLLEGE ALGEBRA QUIZ

- (1) Find the inverse matrix, \mathbf{N}^{-1} , if it exists.

$$\mathbf{N} = \begin{vmatrix} 3 & 0 \\ 1 & 3 \end{vmatrix}$$

$$\mathbf{N}^{-1} = \begin{vmatrix} \frac{1}{3} & 0 \\ \frac{-1}{9} & \frac{1}{3} \end{vmatrix}$$

- (2) Find the inverse matrix, \mathbf{M}^{-1} , if it exists.

$$\mathbf{M} = \begin{vmatrix} 0 & 0 & 4 \\ 0 & -2 & 0 \\ 2 & 0 & 0 \end{vmatrix}$$

$$\mathbf{M}^{-1} = \begin{vmatrix} 0 & 0 & \frac{1}{2} \\ 0 & \frac{-1}{2} & 0 \\ \frac{1}{4} & 0 & 0 \end{vmatrix}$$

- (3) Find the inverse matrix, \mathbf{L}^{-1} , if it exists.

$$\mathbf{L} = \begin{vmatrix} 1 & 0 & 0 & 0 \\ 0 & -3 & -2 & 0 \\ 0 & -3 & -1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix}$$

$$\mathbf{L}^{-1} = \begin{vmatrix} 1 & 0 & 0 & 0 \\ 0 & \frac{1}{3} & \frac{-2}{3} & 0 \\ 0 & -1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix}$$

- (4) Use the inverse of the coefficient matrix of the equivalent matrix equation, to solve the system of equations.

$$3x + 2y = -2$$

$$11x + 9y = 6$$

$(-6, 8)$

- (5) Use the inverse of the coefficient matrix of the equivalent matrix equation, to solve the system of equations.

$$3x + y - 2z = -8$$

$$5x - 4y - 3z = -18$$

$$-4x - 2y + 2z = 8$$

$(-1, 1, 3)$

- (6) Use the inverse of the coefficient matrix of the equivalent matrix equation, to solve the system of equations.

$$5w - 3x + 4y + 3z = 8$$

$$3w + 2x - 2y + 2z = 1$$

$$-4w - 2x + y + 4z = -21$$

$$w + 5x + y + 5z = -23$$

$(3, -2, -1, -3)$