

Name: _____

(Practice) Quiz

Justify all your work. Partial credit will be given if you show your reasoning.

1. Given the linear system
$$\begin{cases} 2x_1 + 6x_2 = -6 \\ 5x_1 + 7x_2 = 1 \end{cases}$$

a) What is the coefficient matrix?

$$\begin{bmatrix} 2 & 6 \\ 5 & 7 \end{bmatrix}$$

b) What is the augmented matrix?

$$\begin{bmatrix} 2 & 6 & -6 \\ 5 & 7 & 1 \end{bmatrix}$$

c) What is the size of the coefficient matrix?

$$2 \times 2$$

d) What is the size of the augmented matrix?

$$2 \times 3$$

e) Row reduce the augmented matrix.

$$\begin{aligned} \begin{bmatrix} 1 & 3 & -3 \\ 5 & 7 & 1 \end{bmatrix} &\sim \begin{bmatrix} 1 & 3 & -3 \\ 0 & -8 & 16 \end{bmatrix} \\ &\sim \begin{bmatrix} 1 & 3 & -3 \\ 0 & 1 & -2 \end{bmatrix} \\ &\sim \begin{bmatrix} 1 & 0 & 3 \\ 0 & 1 & -2 \end{bmatrix}. \end{aligned}$$