Solve each system of equations using matrices. Show the elements in each matrix then you may use the calculator to find the solution. Give the solution as an ordered triple.

1.

$-4x + 3y - z = -54$

$5y + 4z = 4$

$8x + z = 78$

$A \begin{bmatrix} -4 & 3 & -1 \\ 0 & 5 & 4 \\ 8 & 0 & 1 \end{bmatrix}$

$B \begin{bmatrix} -54 \\ 4 \\ 78 \end{bmatrix}$ (9, −4, 6)

2.

$5a - 6b + 7c = 55$

$a + 2b - 4c = -16$

$-3a + c = -3a - 7$

$A \begin{bmatrix} 5 & -6 & 7 \\ 1 & 2 & -4 \\ -3 & 0 & 1 \end{bmatrix}$

$B \begin{bmatrix} 55 \\ -16 \\ -7 \end{bmatrix}$ (4, 0, 5)

3. Three families went to a ball game. At the game they each bought some hot dogs, cokes, and nachos.
One family bought three hot dogs, four cokes, and a nacho for $30.00
Another family bought seven hot dogs, five cokes, and two nachos for $52.25
The last family bought five hot dogs and three cokes for $28.75
Write and solve a system of equations to find the price of each item.

$3H + 4C + N = 30$

$7H + 5C + 2N = 52.25$

$5H + 3C + 0N = 28.75$

$H = \$3.50 \quad C = \$3.75 \quad N = \$4.50$