① $(\overset{x}{3}, \overset{y}{-1}, \overset{z}{2})$

$5x - y + z = 18 \qquad 7x + 3y - 2z = 14 \qquad x + y + z = 4$

$5(3) - (-1) + (2) \overset{?}{=} 18 \qquad 7(3) + 3(-1) - 2(2) \overset{?}{=} 14 \qquad (3) + (-1) + (2) \overset{?}{=} 4$ (YES)

$15 + 1 + 2 \overset{?}{=} 18 \qquad\qquad 21 - 3 - 4 \overset{?}{=} 14 \qquad\qquad 4 \overset{\checkmark}{=} 4$

$18 \overset{\checkmark}{=} 18 \qquad\qquad\qquad 14 \overset{\checkmark}{=} 14$

② $2x + 3y - z = 8$ ①
$5x - y + 2z = 17$ ②
$x + 7y + z = 28$ ③

STEP 1: GROUP EQUATIONS ① AND ② TOGETHER AND ELIMINATE THE Z'S

$2x + 3y - z = 8$ MULT BY 2
$5x - y + 2z = 17$

$4x + 6y - 2z = 16$
$\underline{5x - y + 2z = 17}$
$9x + 5y \qquad = 33$ ④

STEP 2: GROUP EQUATIONS ② AND ③ TOGETHER AND ELIMINATE THE Z'S

$5x - y + 2z = 17$
$x + 7y + z = 28$ et -2

$5x - y + 2z = 17$
$\underline{-2x - 14y - 2z = -56}$
$3x - 15y \qquad = -39$

$x - 5y = -13$ ⑤

STEP 3: GROUP ④ AND ⑤ TOGETHER AND ELIMINATE y'S

$9x + 5y = 33$
$\underline{x - 5y = -13}$
$10x \qquad = 20$

STEP 4: SOLVE FOR X

$\dfrac{10x}{10} = \dfrac{20}{10}$

$\boxed{x = 2}$

STEP 5: PLUG THIS VALUE INTO EITHER EQUATION ④ or ⑤ AND SOLVE FOR Y

$x - 5y = -13$
$2 - 5y = -13$

$-5y = -13 - 2$
$-5y = -15$
$\dfrac{-5y}{-5} = \dfrac{-15}{-5}$

$\boxed{y = 3}$

STEP 6: PLUG THE X AND Y VALUE WE FOUND INTO EQUATION ① or ② or ③ AND SOLVE FOR Z

$2x + 3y - z = 8$
$2(2) + 3(3) - z = 8$
$4 + 9 - z = 8$
$13 - z = 8$

$13 - 8 = z$
$\boxed{5 = z}$

$(2, 3, 5)$

SOLVING SYSTEMS OF EQUATIONS ON TI-83/84

1. INPUT MATRIX
   [2ND] [MODE]

2. [2ND] [x^{-1}]
   RIGHT ARROW TO MATH
   UP ARROW TO RREF
   [ENTER]

   [2ND] [x^{-1}]
   [ENTER] ON A
   [ENTER]

3. IF DECIMALS
   [MATH] [ENTER] [ENTER]

$2x + 3y - z = 8$
$5x - y + 2z = 17$
$x + 7y + z = 28$

$\begin{bmatrix} 2 & 3 & -1 & 8 \\ 5 & -1 & 2 & 17 \\ 1 & 7 & 1 & 28 \end{bmatrix}$

3×4