10.1 Systems Cont'd

Tuesday, October 1, 2013 8:06 AM

Solve for x, y, and z:

#31 $-2x = 2$

$x - 3y = 2$

$-x + 2y + 3z = -7$

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

x y z

Solve for x, y, and z:

① $x + 3y = 14$

$-2x + 4y + z = 5$

$5x + y - 4z = 42$

Eliminate z

$-8x + 16y + 4z = 20$

$5x + y - 4z = 42$

$-3x + 17y = 62$

$\begin{cases} -3x + 17y = 62 \\ x + 3y = 14 \end{cases}$

$(2, 4, -7)$

② $\begin{cases} 3x + 4y - z = 20 \\ 2x + 5y + 3z = 2 \\ -x - 2y + 5z = -32 \end{cases}$

Eliminate x

$2x + 5y + 3z = 2$

$-2x - 4y + 10z = -64$

$y + 13z = -62$

$3x + 4y - z = 20$

$-3x - 6y + 15z = -96$

$-2y + 14z = -76$

$\begin{cases} y + 13z = -62 \\ -2y + 14z = -76 \end{cases}$

$(1, 3, -5)$

$(1, 3, -5)$

$$\begin{cases} y + 13z = -62 \\ -2y + 14z = -76 \end{cases}$$

$$2y + 26z = -124$$

$$40z = -200$$

$z = -5$, $y = 3$

③

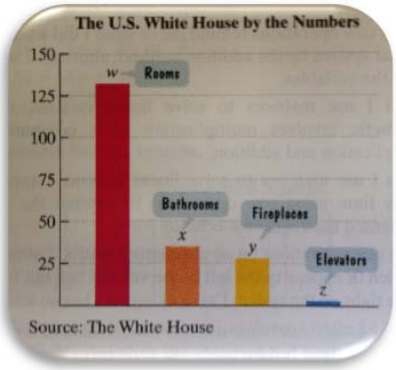
$$\begin{cases} 11x + 2y - 8z = -5 \\ 7x + 13y - 2z = -76 \\ -11x + 11y + 14z = -68 \end{cases}$$

$(3, -7, 3)$

#69 from text

Ticket to the White House!

The bar graph below shows the number of rooms, bathrooms, fireplaces, and elevators in the U.S. White House.



- Combined, there are 198 rooms, bathrooms, fireplaces, and elevators
- The number of rooms exceeds the number of bathrooms plus fireplaces by 69.
- The difference between the number of fireplaces and elevators is 25.
- If the number of bathrooms is tripled, it exceeds the number of fireplaces plus elevators by 74.

Determine the number of rooms, bathrooms, fireplaces, and elevators in the U.S. White House.