Solution to Practice 2a

(b)

Since $2(1) + 2 - (-2) = 2 + 2 + 2 = 6$, $1 - 2(2) - 2(-2) = 1 - 4 + 4 = 1$, and $-1 + 12(2) + 8(-2) = -1 + 24 - 16 = 7$, we see that $\begin{bmatrix} 1 \\ 2 \\ -2 \end{bmatrix}$ IS a solution to the system.

Since $-(0) + 12(3) + 8(-3) = 36 - 24 = 12 \neq 7$, we see that $\begin{bmatrix} 0 \\ 3 \\ -3 \end{bmatrix}$ is NOT a solution to the system.

Since $2(5) + (-1) - 3 = 10 - 1 - 4 = 6$, $5 - 2(-1) - 2(3) = 5 + 2 - 6 = 1$, and $-5 + 12(-1) + 8(3) = -5 - 12 + 24 = 7$, we see that $\begin{bmatrix} 5 \\ -1 \\ 3 \end{bmatrix}$ IS a solution to the system.

(c)

Since $2(1) + 3(1) + 3(1) = 8 \neq 9$, we see that $\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ is NOT a solution to the system.

Since $2 + 1 = 2 \neq 3$, we see that $\begin{bmatrix} 0 \\ 2 \\ 1 \end{bmatrix}$ is NOT a solution to the system.

Since $-2 - 2 = -4 \neq 3$, we see that $\begin{bmatrix} -2 \\ -2 \\ -2 \end{bmatrix}$ is NOT a solution to the system.

(d)

Since $2(-3) + 4(-4) + 0 = -6 - 16 = -22 \neq -16$, we see that $\begin{bmatrix} -3 \\ -4 \\ 0 \end{bmatrix}$ is NOT a solution to the system.

Since $-8 + 2(1) + (-4) = -8 + 2 - 4 = -10 \neq 9$, we see that $\begin{bmatrix} -8 \\ 1 \\ -4 \end{bmatrix}$ is NOT a solution to the system.

Since $11 + (-18) = -7$, $2(11) + 4(-18) + 34 = 22 - 72 + 34 = -16$, and

$11 + 2(-18) + 34 = 11 - 36 + 34 = 9$, we see that $\begin{bmatrix} 11 \\ -18 \\ 34 \end{bmatrix}$ IS a solution to the system.

(e)

Since $1 + 1 = 2 \neq -21$, we see that $\begin{bmatrix} 1 \\ 1 \\ 0 \\ 1 \end{bmatrix}$ is NOT a solution to the system.

Since $1 - 1 + 2 - 1 = 1 \neq 3$, we see that $\begin{bmatrix} 1 \\ -1 \\ 1 \\ -1 \end{bmatrix}$ is NOT a solution to the system.

Since $-10 + 2(8) + 4(8) + (-11) = -10 + 16 + 32 - 11 = 27 \neq 7$, we see that $\begin{bmatrix} -10 \\ 8 \\ 8 \\ -11 \end{bmatrix}$ is NOT a solution to the system.

(f)

Since $3 - 2 + 0 + 0 = 1$, $3 + 2(-2) + 0 + 0 = -1$, and $3 + 0 = 3$, we see that $\begin{bmatrix} 3 \\ -2 \\ 0 \\ 0 \end{bmatrix}$ IS a solution to the system.

Since $2 + 0 - 2 + 1 = 1$, $2 + 0 - 4 + 1 = -1$, and $2 + 1 = 3$, we see that $\begin{bmatrix} 2 \\ 0 \\ -1 \\ 1 \end{bmatrix}$ IS a solution to the system.

Since $-1 + 2 - 4 + 4 = 1$, $-1 + 4 - 8 + 4 = -1$, and $-1 + 4 = 3$, we see that $\begin{bmatrix} -1 \\ 2 \\ -2 \\ 4 \end{bmatrix}$ IS a solution to the system.