1. A coffee shop offers two blends of coffees: House and Deluxe. Each is a blend of Brazil, Colombia,

Kenya, and Sumatra roasts:
$$\begin{bmatrix} & \text{House} & \text{Deluxe} \\ \text{Brazil} & 30\% & 40\% \\ \text{Columbia} & 20\% & 30\% \\ \text{Kenya} & 20\% & 20\% \\ \text{Sumatra} & 30\% & 10\% \end{bmatrix}$$
. Suppose that the shop has 36 lbs

of Brazil roast, 26 lbs of Columbia roast, 20 lbs of Kenya roast, and 18 lbs of Sumatra roast in stock and wants to completely use up the stock of coffee at hand in making the blends. What represents the corresponding system?

a) lbs House $\begin{bmatrix} .3 \\ .2 \\ .2 \\ .3 \end{bmatrix}$ + lbs Deluxe $\begin{bmatrix} .4 \\ .3 \\ .2 \\ .1 \end{bmatrix} = \begin{bmatrix} 36 \\ 26 \\ 20 \\ 18 \end{bmatrix}$

b) $\begin{bmatrix} .3 & .4 \\ .2 & .3 \\ .2 & .2 \\ .3 & .1 \end{bmatrix} \begin{bmatrix} \text{lbs House} \\ \text{lbs Deluxe} \end{bmatrix} = \begin{bmatrix} 36 \\ 26 \\ 20 \\ 18 \end{bmatrix}$

c) $\begin{bmatrix} .3\text{lbs House} + .4\text{lbs Deluxe} \\ .2\text{lbs House} + .3\text{lbs Deluxe} \\ .2\text{lbs House} + .2\text{lbs Deluxe} \\ .3\text{lbs House} + .1\text{lbs Deluxe} \end{bmatrix} \begin{bmatrix} \text{lbs House} \\ \text{lbs Deluxe} \end{bmatrix} = \begin{bmatrix} 36 \\ 26 \\ 20 \\ 18 \end{bmatrix}$

d) two responses from above

e) a) b) and c)

Solutions:
1. d) [a) and b)]