The following is what I got -

The answer in the book is doing minimal round off - and the answer is very sensitive to how you round off.

#31, 6.5

Let a = agriculture, m = manufacturing, h = household } we must produce to be left with

agriculture = 35
manufacturing = 38
household = 40.

So we must solve

$$\begin{pmatrix} a \\ m \\ h \end{pmatrix} - \begin{bmatrix} .25 & .40 & .133 \\ .14 & .12 & .100 \\ .86 & 3.60 & .133 \end{bmatrix} \begin{pmatrix} a \\ m \\ h \end{pmatrix} = \begin{pmatrix} 35 \\ 38 \\ 40 \end{pmatrix}$$

or

$$\begin{cases} .75a - .40m - .133h = 35 \\ -.14a + .88m - .100h = 38 \\ -.80a - 3.60m + .867h = 40 \end{cases}$$

The augmented matrix is

$$\left[\begin{array}{ccc|c} .75 & -.4 & -.133 & 35 \\ -.14 & .88 & -.1 & 38 \\ -.8 & -3.6 & .867 & 40 \end{array}\right]$$

Multiply 1st row by $\frac{1}{.75}$

$$\left[\begin{array}{ccc|c} 1 & -.53 & -.177 & 46.67 \\ -.14 & .88 & -.1 & 38 \\ -.8 & -3.6 & .867 & 40 \end{array}\right]$$

2^{nd} row $+ .14 \times 1^{st}$ row

$$\begin{array}{rrrr} -.14 & .8 & -.1 & 38 \\ +(.14 & -.074 & -.025 & 6.53) \\ \hline (0 & .806 & -.125 & 44.53) \end{array}$$

$$\left[\begin{array}{ccc|c} 1 & -.53 & -.177 & 46.67 \\ 0 & .806 & -.125 & 44.53 \\ -.8 & -3.6 & .867 & 40 \end{array}\right]$$

3^{rd} row $+ .8 \times 1^{st}$ row

$$\begin{array}{rrrr} -.8 & -3.6 & .867 & 40 \\ +(.8 & -.42 & -.142 & 37.336 \\ \hline 0 & -4.02 & .725 & 77.336 \end{array}$$

$$\left[\begin{array}{ccc|c} 1 & -.53 & -.177 & 46.67 \\ 0 & .806 & -.125 & 44.54 \\ 0 & -4.02 & .725 & 77.336 \end{array}\right]$$

2^{nd} row $\times \frac{1}{.806}$

$$\left[\begin{array}{ccc|c} 1 & -.53 & -.177 & 46.67 \\ 0 & 1 & -.155 & 55.26 \\ 0 & -4.02 & .675 & 77.336 \end{array}\right]$$

3^{rd} row $+ 4.02 \times 2^{nd}$

$$\begin{array}{rrrr} 0 & -4.02 & .725 & 77.336 \\ +(0 & 4.02 & -.623 & 222.145) \\ \hline 0 & 0 & .102 & 299.481 \end{array}$$

$$\left[\begin{array}{ccc|c} 1 & -.53 & -.177 & 46.67 \\ 0 & 1 & -.155 & 55.26 \\ 0 & 0 & .102 & 299.481 \end{array}\right]$$

Bottom row $.102h = 299.481$

or $h = \frac{299.481}{.102} = 2936.0$

Middle row $m - .155h = 55.26$

So $m - .155(2936.3) = 55.26$

$M - 455.12 = 55.26$

$m = 55.26 + 455.12$

$m = 510.38$

end

Top row

$a - .53m - .177h = 46.7$

$a - .53(510.38) - .177(2936.3) = 46.7$

$a - 270.7 - 519.72 = 46.7$

$a = 46.7 + 270.7 + 519.72$

$a = 835$