

## Updates on the Book

### 1. Algebra Notes, Example 1.5

The total revenue is \$175.

$$(a) \quad (i) \quad \begin{cases} x + y + z = 28 \\ 6x + 5y + 9z = 175 \\ 2x - y = 0 \end{cases}$$

### 2. Statistics and Probability Notes, Section 3

Markov Chain with transition matrix  $T$ :

3.  $\mathbf{v}$ : **Steady state vector**, which is the eigenvector of  $T$  corresponding to the eigenvalue  $\lambda = 1$
4.  $\mathbf{p}$ : **Steady state probability vector**, which is the eigenvector of  $T$  corresponding to the eigenvalue  $\lambda = 1$ , with the sum of all entries equals to one
5.  $\mathbf{v}_0$ : **Initial state vector**
6.  $\mathbf{p}_0$ : **Initial state probability vector**, with the sum of all entries equals to one
7.  $\mathbf{v}_n = T^n \mathbf{v}_0$ : **State vector after  $n$  transitions**
8.  $\mathbf{p}_n = T^n \mathbf{p}_0$ : **State probability vector after  $n$  transitions**, with the sum of all entries equals to one
9. The **column sum for all columns in  $T$**  must be equal to **one**

### 3. Statistics and Probability Notes, Example 4.7

- (d) (ii) Hence, write down the **steady state vector** for this Markov chain.

### 4. Statistics and Probability Notes, Exercise 4.7

- (d) (ii) Hence, write down the **steady state vector** for this Markov chain.