Business Math: A Case Study

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This paper is written with the sole purpose of defining, explaining and carefully examining the state of the business using the data provided in the excel spreadsheets. The data regarding the cost of goods being sold, their retail prices markups and several other such components are provided. This paper will discuss the several components being detailed in the spreadsheet, the insights that can be extracted from them and the formulas that are used to complete the missing values from the tables. The condition of the business over time will also be discussed using the data for previous weeks provided, and conclusions will be made from the data as a whole.

# Cost, Retail and Markup percentages

In regular retail business, cost of the goods being sold refers to the original price that is used for the procurement of goods for selling purposes. The retail price refers to the price at which the goods are being sold. Usually, this margin is the biggest source of profit for the retailer. One of the main aims of the shopkeeper, while selling goods, is to keep this margin as big as possible and gain as much of a profit as possible. This margin is commonly understood by the term “Markup percentage”. In economic terms, markup is the difference between a cost as a percentage of the cost of a product and its selling price. Generally, it is calculated in the form of percentages as they give us a more detailed insight at the working of the retail store. The formula used for the calculation of the markup percentages is given below(*Markup—Learn How to Calculate Markup & Markup Percentage*, n.d.).

Using the above-mentioned formula, we were able to calculate the missing values in the spreadsheet and found out that the average markup for most products in the store revolves approximately to 50%.

## Cost complement and the inventory

# A number of specific terms are used to express specific phenomenon related to retail. One of them is cost complement. The total price of beginning inventory when added with the cost of purchases and then divided by the retail selling prices of beginning inventory and purchases gives us the value of cost complement. It can be used as the reciprocal of the markup and the understanding can be used to generate insights for essentially the same purposes. Some of the terms that are used to understand the working of a retail store are detailed below.

## Beginning of week on hand

This term refers to the number of the specific product in the inventory at the beginning of the said week. In the data shown in the spreadsheet, there are a total of 150 units of mid-grade wiper blades available in the inventory at the beginning of the week, which means that after selling 10 in the week, there were a total of 140 left which are also seen in the columns next to it.

## On hand

The data detailed in the column starting with the heading “on hand” explains the number of items that are, at this moment in time, present in the inventory. It is calculated by subtracting the weekly sale from the available inventory. The formula for them is shown below.

## Percentage of last week unit sales (% SLS)

The percentage of products sold, when compared to the total number of products in the inventory, gives us the total percentage of last week sales. We can understand the differences between the sales of different weeks looking at this piece of data.

## Average weekly sales

The recognition of the average of units sold per week, when aggregated, gives us the average weekly sales. This piece of information can be used to order future procurements and make sure that you do not have an extensive markdown at the end of the quarter(*How To Calculate Average Sales l Sisense*, n.d.). It can also be used to see how well the store is functioning with regards to sales.

## Weeks of supply

The number of weeks for which the inventory has the products stored can be calculated using the average weekly sales and the total products present in the inventory. This information is necessary to known when to order the next set of products considering the time required for manufacturing of the product.

## Conclusion

The data as seen on the spreadsheet indicates that the sales are lower than expected especially considering the number of products stored in the inventory. The number of products being sold needs to increase drastically if the business is to be sustained with longevity. One good thing about the business is that the markup percentage promises good profit on every sale which can make the business sustainable, but at the end of the day, in order to increase the sales of goods, the retailer might have to decrease the markup percentage as the prices might be the main cause of a low rate of sales.

# The New Season

In the data provided in the second spreadsheet, we are asked to calculate the values of retail price of each item with the already given retail price, the average of the newly provided markup and the predicted sales for the new season. We were also provided with targets to meet so that in the next season, our sales target is met.

## New Retail price

With the new markup percentage provided, the new retail price for each of the provided items was calculated using the following formula.

After calculating the new retail price, the total retail for the season was calculated by multiplying the newly found retail price to the number of each items in the inventory. Afterwards, the total sale in dollars was calculated by using the projected values and multiplying them with the calculated retail values, for that particular season.

## Conclusion

The new markup percentages that are provided have been able to meet the markup target but they have not been able to meet the target of total sales in dollars with the projected sale in dollars. It is suggested to either take steps to increase the sale somehow or increase the markup percentage a little more to meet the sales target.

# Season analysis

The third spreadsheet thus provided details the next season with a few missing values for us to fill. The details include data like markdown per month, sales and receipts, the total value of stock at the start of the season at retail and the total value of stock at the end of season. The values revolve around the way that the business is doing over the season and is designed to give us an idea for the future of the business. Generally, in issues of business mathematics, there are always some recommendations that are required at the end of the problem. Such recommendations will be provided in the conclusion section of the report.

The missing values of the value of stock, at the beginning of the month at retail, are placed by using the following formula.

The above-mentioned formula was used for the missing values of the table in the columns of stock value at the start of month and the stock value at end of month. The missing sales values were also filled using this formula. As far as those columns are concerned, in which two or more than two unknown variables were present, the average value of one of them was used to fill the missing value. The other one was filled using the given formula.

The values of total number of sales were completed by adding all the prices of products sold over the timespan of six months, whereas, the average was calculated by dividing the thus found value by the total number of values of the same time. The formula used is shown below.

A similar technique was used to calculate the average stock and the average turnover during the six months. Afterwards, the values of cost complements were found by subtracting the value of retail markup percentage from unity. The thus found values were used to find the total cost of stock at the beginning as well as the end of the month.

The final value of the average inventory cost over the timespan of six months was calculated by dividing the sum of total number of inventory cost found at the end of month with the total values. The formula is shown below.

## Average turnover

The average turnover in the given data is relatively low which is a good thing. In its very essence, turnover is a concept used in accounting which refers to how quickly a business conducts its different operations (Kenton, n.d.). Usually, turnover is used to understand how quickly a company collects cash that is receivable and how quickly the organization is able to sell its products that are stored in the inventory.

## Conclusion

From the data that is provided in the last spreadsheet, there is a mixed trend in sales of the organization and the company is able to maintain a good business pattern over time. The markup can be adjusted to increase sales, as sales are the most important thing in any business. After building a name and reputation for your company, we can then increase the markup as people will be willing to invest in the business due to better reviews and reputation.

**References**

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