Calculating Markup: A Merchandising Tool

Part 2: Markup as a Merchandising Tool: Basic Merchandising Mathematics

Part 2: 2-1 Introduction: Basic Retail Pricing Components

As discussed in *Part 1: 1-1*, retail pricing is key to the operations and profitability of the retail store. Establishing retail prices involves an understanding of the retail price components, types of markup, and external and internal factors impacting the store's pricing policy. There are three basic components of pricing: **retail price**, **wholesale cost**, and **markup**.

The **retail price** is the price the consumer pays for the merchandise or the dollar value of the merchandise the consumer pays to the retailer when making a purchase. Retail price is composed of the wholesale cost (billed or invoiced cost of goods) and markup. Retail price may be expressed in terms of both dollars and percent. When using percent, **retail price is always 100%**. (If using a pie chart, always think of the retail price as the amount of the total space of the chart.)

The formula for calculating **retail price** when wholesale cost and markup are known is as follows:

Retail $ = Cost $ + Markup $

Examples in Part 2: 2-1 use the following numerical values:

Retail dollars = $150.00
Cost dollars = $65.00
Markup dollars = $85.00

Problem: **Retail $ = ?**
Cost $ = $65.00
Markup $ = $85.00

Retail $ = Cost $ + Markup $
= $65.00 + 85.00
= $150.00

Retail % = Cost % + Markup %

100% = Cost % + Markup %

Wholesale cost is also known as the billed cost or invoiced cost of goods. (When working with calculations, many retailers designate the wholesale cost as cost of goods sold.) Specifically, it is the amount that the retailer pays the vendor (i.e., manufacturers, contractors, importers, jobbers, wholesalers, other retailers) for merchandise purchased for the retail store. The vendor sends the retailer an invoice (bill) for goods purchased from the vendor. The invoice cost contains not only the cost of the goods but also the transportation costs to ship the goods to the retailer plus any insurance to cover the merchandise during the shipping process.

Also, many companies or vendors, especially in certain segments of the industry, give cash discounts to the retailer for paying the bill or invoice on or before the designated payment due date. These discounts are stated in the **terms of sale** (i.e., discounts, dating, delivery specifications) and are written on both the retailer's order copy and the vendor's order acknowledgement. Cash discounts are deducted from

the wholesale cost of goods when the retailer pays the invoice. Other vendor discounts include quantity discounts and trade discounts and these are deducted by the vendor from the wholesale cost on the invoice before the retailer receives the bill. Also, some companies may offer the retailer vendor allowances (e.g., advertising, display, markdowns). However, allowances usually reduce the cost of operations rather than the cost of merchandise.

The formula for calculating **cost** when retail and markup are known is as follows:

Cost $ = Retail $ - Markup $

Example:

Cost $ = ?
Retail $ = $150.00
Markup $ = $85.00

Cost $ = Retail $ - Markup $
= $150.00 - $85.00
= $65.00

Cost % = Retail % - Markup %

(Hint: Remember that Retail % is always 100% and many times management will provide the markup goal % that the buyer needs to achieve.)

The **markup** component of pricing is the amount the retailer adds to wholesale cost in order to determine the initial or original retail price of an item. The markup amount must be large enough to cover operating expenses, reductions (i.e. discounts, customer return and allowances, markdowns, shrinkage / shortage) and profit. Markup may be established using several different pricing methods. (Those methods will be discussed in *Part 3: (3-1 – 3-3) of this Section,* **Section 1***)*. For example, some retailers use a **keystone** markup or double the wholesale cost to calculate the retail price. However, due to the current economic conditions in the marketplace and the larger amount of private label merchandise now carried by many retail stores, keystone markups are not as prevalent as in past years.

As the two other pricing components, markup may be expressed in either dollars or as a percentage. Percentages are useful for making comparisons across merchandise classifications, departments, and stores; planning retail prices and stock levels; and calculating expenses and profit. Markup percents vary within and across merchandise classifications, departments and retail store types. For example, some stores operate on high volume and low markups while others maintain high markups but provide added services for the target consumer.

Also, **markup percents** may be calculated on either retail or cost dollars. However, markup is usually expressed as a percentage of retail dollars since most stores today operate on the retail system. When operating on the retail system, retail statistics are expressed as a percentage of **Net Sales** (i.e., 100%) or **Gross Sales** minus reductions. Net sales are also known as the sales volume or operating income for the store.

Markup percents based on retail are always a smaller figure than those based on cost. Markup based on retail can never be 100% or over 100%, while markup based on cost may exceed 100%!

The formula for calculating M**arkup $** when retail and cost are known is as follows:

Markup $ = Retail $ - Cost $

Example: **Markup $ = ?** **Markup $ = Retail $ - Cost $**
Retail $ = $150.00 **= $150.00 - $65.00**
Cost $ = $65.00 **= $85.00**

Markup % = Retail % - Cost %

OR

The formula for calculating **Markup Percent (retail)** when **Retail $** and **Markup $** are known is as follows:

Markup % (Retail) = Markup $ ÷ Retail $

Example: **Markup % = ?** **Markup % = Markup $ ÷ Retail $**
Retail $ = $150.00 **= $85.00 ÷ $150.00**
Markup $ = $85.00 **= 56.67 %**

The formula for calculating **Markup Percent (cost)** when **Cost $** and **Markup $** are known is as follows:

Markup % (Cost) = Markup $ ÷ Cost $

Example: **Markup % = ?** **Markup % = Markup $ ÷ Cost $**
Cost $ = $65.00 **= $85.00 ÷ $65.00**
Markup $ = $85.00 **= 130.77 %**

(Hint: Always round both dollars and percentages to two decimal places or carry to three decimal places and round to two. For example, if the amount is $5.344 or less the figure is rounded to $5.34; however, if the figure is $5.345 or over, then it is rounded to $5.35.)

Remember, markup percent based on retail is most often used in current retail businesses that operate on the retail system. For this course, markup percent will be calculated on retail.

Mixture of Retail Pricing Components:
At any given time in a retail store, when two of the pricing components are given to retail merchandisers or buyers, they must calculate the value of the third component. However, the known components are usually given to the buyers as a mixture of dollars and percents. Regardless, the relationship of these components can be manipulated to calculate the missing component.

Think of the retail price component as the **base dollars** (100%), the **rate** as any percentage (e.g., cost %, markup %) and the **result dollars** as the **base $ × the rate %**. Therefore the result dollars correspond with the rate %. For example, the percent for markup must be used to calculate markup dollars while the percent for cost must be used to calculate cost dollars.

The formula to solve for an unknown in a mixture of retail price components or components given in both dollars and percentage is as follows:

Result $ = Base $ × Rate %

Example: **Base $ (Retail $) = $150.00**
Rate % (Cost %) = 43.33% or $65.00 ÷ $150.00
Rate % (Markup %) = 56.67% or $85.00 ÷ $150.00

OR

The formulas for calculating **Cost $** and **Markup $** when **Retail $** (base) and **Markup %*** (rate) or **Cost % ***(rate) are known are as follows:

Cost $ = Retail $ × Cost %

Markup $ = Retail $ × Markup %

***(Hint: When calculating formulas with a percentage, the percentage must be converted to a decimal by dropping the % sign and divide by 100, e.g., 60.0% = .60)**

To calculate and study the relationship among the retail price components, most retailers now use spreadsheets, computer generated, to analyze the information. Using the spreadsheet below, the buyer can solve for any missing component. (Hint: First set-up the spreadsheet with retail price components shown on the rows, and the dollars and percents for each of the components in the columns.)

Place the information that you are given (seen in blue below for the first problem) on the spreadsheet to solve for the missing parts or what components must be calculated. Then determine what formulas are needed in order to solve for or to calculate the missing parts. The two formulas above along with a few others may be used to express retail price relationships and to calculate changes in that relationship. (Hint: Remember the retail component is always 100%.)

Calculating Markup $ when Retail $ and Markup % are known:
Problem Example: Using a spreadsheet, calculate **Markup $** when **Retail $** (base) and **Markup %** (rate) are known
Problem: **Retail $ = $150.00**
Markup % = 56.67%

Components	Dollars $	Percentages
Retail	$150.00	100.00%
Cost		
Markup	$85.00	56.67%

1. Calculate the **Markup $** using the following formula.

Markup $ = Retail $ × Markup %
Markup $ = $150.00 × 56.67% (.5667)
Markup $ = $85.00

Calculating Cost $ when Retail $ and Markup % are known:

Problem: **Retail $ = $150.00**
Markup % = 56.67%

Components	Dollars $	Percentages
Retail	**$150.00**	**100.00%**
Cost	**$65.00**	**43.33%**
Markup		**56.67%**

1. Calculate **Cost $ when Retail $ and Markup % are known.** (Hint: Solve for Cost % first.)
Cost % = Retail % - Markup %
Cost % = 100.0% - 56.67% (.5667)
Cost % = 43.33%

2. Now calculate **Cost $**.
Cost $ = Retail $ × Cost %
Cost $ = $150.00 × 43.33% (.4333)
Cost $ = **$65.00**

OR

Cost $ = Retail $ - Markup $
Cost $ = $150.00 - $85.00
Cost $ = $65.00

Calculating Retail $ when Cost $ and Markup % is known:
Using the same spread sheet and example above calculate **Retail $** when **Cost $** and **Markup %** are known.

Example: **Cost $ = $65.00**
Markup % = 56.67%

Components	Dollars $	Percentages
Retail	**$150.00**	**100.00%**
Cost	**$65.00**	
Markup		**56.67%**

1. Calculate **Retail $** when **Cost $** and **Markup %** are known.
Cost % = Retail % - Markup %
Cost % = 100.00% - 56.67%
Cost % = 43.33%

2. Now calculate **Retail $**. (Hint: this is a new formula!)

Retail $ = Cost $ ÷ Cost %

Retail $ = $65.00 ÷ 43.33% (.4333)

Retail $ = $150.00

All of these basic formulas are utilized by retail merchandisers and buyers on a day-to-day basis in order to analyze financial information and to evaluate how the retail price elements may impact wise buying decisions and ultimately the profit for the retailer.