Calculating Discounts in Anthology

In short, there are two situations in a bookstore where discounts will be applied. These when placing an order and when selling an item.

- On a vendor purchase order, the discount is considered a "Trade" discount, sometimes called Volume discount. GAAP rules indicate the discount would be applied at the very end of the invoice after the units and extended price are calculated, not per line item first.
- Alternatively, Cash Register and Customer order transactions are Markdown type discounts. GAAP rules indicate the discount must be applied to each item first to find its per unit price, and then the units being sold to find the extended price. It's the "per unit **price**" that's important to keep in mind.

At first glance, it may look like these two methods should come up with the same $ amount, but they will not due to when the rounding is being done. For example, given an item being retailed for $6.99, customer is buying 132 units, but we're offering them a markdown discount of 25%.   Because I must find the unit price first, the math looks like this in a CR or CO sale-

6.99 @ 25% off =   6.99 * 0.75 = 5.24<u>25</u> Since we want **price**, it must be <u>rounded</u> to $5.24 The new markdown price is then totaled or $5.24 * 132 = $691.68

In the case of a Trade discount, the price is calculated at the very end, with rounding only occurring once.   In a PO (trade/volume discounts), the math would look like this-

6.99 * 132 units = $ 922.68
Minus the 25% discount 922.68 * 0.75 = $692.01 invoice price

NOTE: When using a program like Excel to calculate the discount the number will vary slightly because of the precision of the calculation. Using the numbers from the first calculation we get the following

6.99 * 0.75 = 5.2425 When we total this number 5.2425 * 132 = 692.01

This is because you need to specifically tell Excel to round the first result. Example:
=ROUND(6.99 *0.75, 2) * 132