

These formulas are demonstrated using this sample data for 13 weeks:

LY POS Sales	\$1,000,000
TY POS Qty	240,000
TY POS Sales	\$1,200,000
TY Ship Cost	\$1,040,000
TY Ship Retail	\$1,300,000
TY Markdowns	\$60,000
Current Inv @ Retail	\$369,200
Weeks on Hand	4
Avg Inv @ Retail	\$380,000
Avg Inv @ Cost	\$304,000



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VOLUME MEASURES		CALCS
Sales Increase %	$Sls\ Inc\ \% = TY\ Sls / LY\ Sls - 1$	20%
LY Sales	$LY\ Sls = TY\ Sls / (Sls\ Inc\ \% + 1.00)$	\$1,000,000
TY Sales	$TY\ Sls = LY\ Sls * (Sls\ Inc\ \% + 1.00)$	\$1,200,000
Average Price	$Avg\ Px = POS\ Sales / POS\ Qty$	\$5
POS Sales	$Sls = POS\ Qty * Avg\ Px$	\$1,200,000
POS Qty	$Qty = POS\ Sales / Avg\ Px$	240,000
PROFITABILITY MEASURES		
Cost	$Cost = Rtl * (1.00 - MU\ \%)$	\$1,040,000
Retail	$Rtl = Cost / (1.00 - MU\ \%)$	\$1,300,000
Markdown %	$MD\ \% = MD\ \$ / POS\ Sales$	5%
Markdown \$	$MD\ \$ = POS\ SALES * MD\ \%$	\$60,000
POS Sales	$Sls = MD\ \$ / MD\ \%$	\$1,200,000
Maintained Margin	$MM\ \% = MU\ \% - MD\ \% Cost$	16%
	$MD\ \% Cost = MD\ \% Rtl * CC\ \%$	4%
	$CC\ \% = 1.00 - MU\ \%$	80%
Therefore	$MM\ \% = MU\ \% - (MD\ \% * (1.00 - MU\ \%))$	16%
Therefore	$MM\ \% = MU\ \% + (MD\ \% * MU\ \%) - MD\ \%$	16%
Initial Margin	$[(Retail - Cost) / Retail] * 100$	20%
Markdowns	$MD\ \% = (MM\ \% - MU\ \%) / (MU\ \% - 1.00)$	5%
ASSET EFFECIENCY MEASURES		
Inv Turns (Ann)	$Turns = Ann\ Rtl\ Sls / Avg\ Rtl\ Inv$	12.63
Ann Rtl Sls	$Ann\ Rtl\ Sls = Avg\ Rtl\ Inv * Turns$	\$4,800,000
Avg Rtl Inv	$Avg\ Rtl\ Inv = Ann\ Sales / Turns$	380000
Shortcut	$Turns = 52 / WOH$	13
Shortcut	$WOH = 52 / Turns$	4.12
GMROII	$GMROII = Ann\ GP\$ / Avg\ Cost\ Inv$	2.53
Ann GP\$	$Ann\ GP\$ = Avg\ Cost\ Inv * ROII$	\$768,000
Avg Cost Inv	$Avg\ Cos\ InV = Ann\ GP\$ / ROII$	\$304,000
Shortcut	$ROII = (MM\ \% / CC\ \%) * Turns$	2.41
Shortcut	$MM\ \% = (ROII / Turns) (1 + R. O. I.I. / Tur$	16%
Shortcut	$Turns + ROII / (MM\ \% / CC\ \%)$	12.63

ABBREVIATIONS

Ann - Annual.
CC - Cost complement or counterpart of MU% or MM%. If MU is 20%, CC is 80%. If MM is 16%, CC is 84%.
GMROII - Gross margin return on inventory investment.
GP - Gross profit. This may be dollars (GP\$) or percent of retail sales (GP%).
Inv - Inventory.
MD - Markdown. Usually represents markdown dollars as a percentage of retail sales dollars (MD%).
MM% - Maintained margin.
MU - Markup. Usually this represents initial margin percentage (MU%).
POS - Point of sale.
PX - Price.
ROI - Return on investment.
Sls - Sales in \$ or units. POS Sales is sales dollars. POS Qty is sales units.
WOH - Weeks on hand. The number of weeks worth of sales currently in inventory. 13 WOH means that current inventory levels are equivalent to 13 weeks worth of sales.