

RETAIL MATH CHEAT SHEET

THESE SAMPLE FORMULAS ARE BASED ON THE DATA BELOW

ABBREVIATIONS

SlS = Sales. Could be unit or dollars. POS Qty is sales units. POS Sales represents sales dollars.

MU = Markup. Usually represents initial margin percentage (MU%)

MD = Markdowns. Usually represents markdown dollars as a percentage of retail sales dollars (MD%)

GMROI or ROI = Gross Margin Return on Inventory Investment, or simply Return Investment.

W.O.H. = Weeks on Hand. Number of weeks worth of sales that is currently in inventory. 13 W.O.H. means that current inventory levels are equivalent to 13 weeks worth of sales.

GP = Gross Profit. Could be dollars (GP\$) or percent of retail sales (GP%).

CC = Cost Complement. The counterpart of MU% or MM%. If MU% is 20%, then CC% is 80%. If MM% is 16%, the CC% is 84%.

INV = Inventory MM% = Maintained Margin PX = Price Avg = Average

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	4.00
Avg. Inventory @ Retail	\$380,000
Avg. Inventory @ Cost	\$304,000

VOLUME MEASURES

01	Sales Increase %	$Sls\ Inc\% = (TY\ SlS - LY\ SlS) / LY\ SlS$	CALCS 20.0%
02	LY Sales	$LY\ SlS = TY\ SlS / (SlS\ Inc\ \% + 1.00)$	\$1,000,000
03	TY Sales	$TY\ SlS = LY\ SlS * (SlS\ Inc\ \% + 1.00)$	\$1,200,000
04	Average Price	$Avg.\ Px = POS\ Sales / POS\ Qty$	\$5.00
05	POS Sales	$SlS = POS\ Qty * Avg\ Px$	\$1,200,000
06	POS Qty	$Qty = POS\ Sales / Avg\ Px$	240,000

PROFITABILITY MEASURES

07	Initial Margin	$MU\% = (Rtl - Cost) / Rtl$	CALCS 20.0%
08	Cost	$Cost = Rtl * (1.00 - MU\%)$	\$1,040,000
09	Retail	$Rtl = Cost / (1.00 - MU\%)$	\$1,300,000
10	Markdown %	$MD\% = MD\$ / POS\ Sales$	5.00%
11	Markdown \$	$MD\$ = POS\ Sales * MD\%$	\$60,000
12	POS Sales	$SlS = MD\$ / MD\%$	\$1,200,000
13	Maintained Margin	$MM\% = MU\% - MD\%Cost$	16.00%
		$MD\%Cost = MD\%Rtl * CC\%$	4.00%
		$CC\% = 1.00 - MU\%$	80.00%
14	Therefore ->	$MM\% = MU\% - (MD\% * (1.00 - MU\%))$	16.00%
15	Therefore ->	$MM\% = MU\% + (MD\% * MU\%) - MD\%$	16.00%
16	Initial Margin	$MU\% = (MM\% + MD\%) / (1.00 + MD\%)$	20.00%
17	Markdowns	$MD\% = (MM\% - MU\%) / (MU\% - 1.00)$	5.00%

ASSET EFFICIENCY MEASURES

18	Inventory Turns (Ann)	$Turns = Ann\ Rtl\ SlS / Avg\ Rtl\ Inv$	CALCS 12.63
19	Ann Rtl SlS	$Ann\ Rtl\ SlS = Avg\ Rtl\ Inv * Turns$	\$4,800,000
20	Avg Rtl Inv	$Avg\ Rtl\ Inv = Ann\ SlS / Turns$	\$380,000
21	Shortcuts ->	$Turns = 52 / W.O.H.$	13.00
22		$W.O.H. = 52 / Turns$	4.12
23	Return on Investment	$R.O.I.I. = Ann\ GP\$ / Avg\ Cost\ Inv$	2.53
24	Ann GP\$	$Ann\ GP\$ = Avg\ Cost\ Inv * R.O.I.I.$	\$768,000
25	Avg Cost Inv	$Avg\ Cost\ Inv = Ann\ GP\$ / R.O.I.I.$	\$304,000
26	Shortcut ->	$R.O.I.I. = (MM\% / CC\%) * Turns$	2.41
27		$MM\% = (R.O.I.I. / Turns) / (1 + (R.O.I.I. / Turns))$	16.00%
28		$Turns = R.O.I.I. / (MM\% / CC\%)$	12.63