Comprehensive Media Math Formula Sheet

Impression - Meeting of one message with one consumer

Impression	=	Rating (or TRPs, or Coverage) / 100	x	Universe
Local Impressions For A Plan W/ Local & National	=	National + Local GRPs / 100	x	Local Target Universe
Impression	=	Cost / CPM	x	1,000

Rating/Coverage (print) - Number of impressions expressed as a % of a universe

Rating, TRP or Coverage	=	Impressions / Universe	x	100
Local Rating (TRP)	=	Local Impressions / Local Universe	x	100
National Rating (TRP)	=	Local Impressions / National Universe	x	100
TRPs	=	Reach	x	Frequency
Rating Points (TRP)	=	Cost / CPP		

M - Media abbreviation for thousands

* Move decimals, do not eliminate numbers

* Whole # to M or MM (abbreviating numbers) - Move the decimal LEFT ←

* M or MM to whole # (un-abbreviating numbers) - Move the decimal RIGHT →

Universe - Total persons in a given population or target group

Universe	=	Impressions x 100 / Rating	1% Universe	=	Universe	x 0.01

GRPs & TRPs - The sum of rating points in a schedule/campaign

Schedule Total TRPs	=	(# Program A Insertions x Program A Rating) + (# Program B Insertions x Program B Rating) + (# Program C Insertions x Program C Rating) …
Schedule Average Rating	=	Schedule Total TRPs / Total # Of Schedule Insertions Or Spots (All Programs)

Reach - The % of an audience exposed to one or more messages

Reach	=	Unduplicated Impressions / Universe	x 100	Reach	=	TRPs / Frequency

Frequency - The average number of times a target is exposed to the message during the time frame

Frequency	=	Impressions / Unduplicated Impressions		Frequency	=	TRPs / Reach

(Efficiency) Index - Indicates whether the number evaluated is higher or lower than the norm and by how much

(Efficiency) Index	=	X / Y	x 100

CPM - The cost of each 1,000 impressions

CPM	=	Cost / Impressions M	CPM	=	CPP / Impressions 1 Rating Point M	
CPM	=	CPP / 1% Target Universe	x	1,000		

CPP - The cost to buy one rating point (1%) for a given target audience

$$CPP = \frac{Cost}{Rating\ Points}$$

$$CPP = \frac{CPM}{1{,}000} \times 1\%\ Target\ Universe$$

Weighted CPP - Calculated to reflect other plan components

Weighted CPP = (Component 'A' CPP x % Of Total) + (Component 'B' CPP x % Of Total) .....

Steps To Calculate The Weighted CPP

Step 1: Calculate schedule total TRPs **Step 2:** Calculate TRP % allocation **Step 3:** Confirm it totals 100%

Step 4: Multiply CPPs by the % allocation **Step 5:** Add all sub-totals

Steps To Determine Total Schedule Cost Based On Weighted CPP

Step 1: Multiply weighted CPP by the total schedule TRPs

Steps To Determine Hypothetical Plan Cost Based On Weighted CPP

Step 1: Confirm CPPs & TRP % allocation have not changed **Step 2:** Multiply weighted CPP by # hypothetical plan TRPs

Cost - (using algebra to back out of efficiency formulas)

Cost = CPP X Rating (TRPs or GRPs)

Cost = CPM x Impressions M

Cost = Cost Per (clicks, responses ...) x (clicks, responses ...)

Cost Per ... (any metric you choose) - Cost of advertising based on the number of _____ (other metric)

$$\text{Cost Per ... (fill in metric here)} = \frac{Cost}{\text{(Fill in metric here)}}$$

Composition - The percentage of the medium/vehicle that is comprised of the target audience

$$Composition = \frac{Media\ Target\ Audience}{Media\ Total\ Audience} \times 100$$

Coverage - The relationship between the (target) composition of the vehicle vs. the total target universe

$$Coverage = \frac{Media\ Target\ Audience}{Target\ Universe} \times 100$$

Index (Selectivity) - Target comp of a media vehicle compared to the target comp of the total population

$$Index\ (Selectivity) = \frac{\%\ Composition\ Of\ Medium}{\%\ Composition\ Of\ Population} \times 100$$

Click Thru Rate (CTR) - Ratio of clicks to ad impressions (digital term)

$$CTR = \frac{Clicks}{Ad\ Impressions} \times 100$$

BDI - Brand Development Index - Measures the strength of the brand in a given market

$$BDI = \frac{\%\ Brand\ Sales}{\%\ US\ Population} \times 100$$

CDI - Category Development Index - Measures the strength of the category in a given market

$$CDI = \frac{\%\ Category\ Sales}{\%\ US\ Population} \times 100$$

	High BDI (120+)	Average BDI (80-120)	Low BDI (<80)
High CDI (120+)	Doing well in a strong market - receive some of the local overlay	Investment markets - heavy up to grow	Getting killed - do not consider unless there is a new product/message to steal share
Average CDI (80-120)	Doing something right - sustain - look at history, make sure the future plan sustains these areas	Everything is average - national media will usually suffice, but opportunity to heavy-up too	Better chance to regain share - more likely due to distribution vs marketing
Low CDI (<80)	May not need as much support - markets usually hold their own without much extra support	Sustain - these are areas that competitors attack first	Unless client has a category message, do not use these markets