BASIC MATH SKILLS

As a manager it is important to know some basic math skills in order to calculate what the food cost is on the special you are running today or to know how to calculate Over Time. The computer calculates most of these things for you; but the wise manger knows that to effectively control costs, they must understand how the computer arrives at the numbers.

The following chart will explain and give formulas for several situations. Print the chart so you can reference it when needed.

Function	Formula	Explanation
Calculating food cost percentage	Food dollars spent ÷ Net sales (% key) = food cost percent	How much you spent for food, divided by how much you took in (in sales) will give you what percent of sales the food cost.
Calculating labor percent	Labor $ spent ÷ Net sales (% key) = Labor percent	How much you spent for labor, divided by net sales will give you what percent of sales you spent on labor.
Calculating Per Person Expenditure (PPE)	Net sales ÷ Total Guest Count = PPE	This tells you on average how much each guest is spending in your restaurant.
Converting pounds to ounces	# Of lbs X 16 (ounces) = total # of ounces Example: 6 lbs X 16 = 96 ounces	You may use this when costing out a special to find out what one-ounce of a particular item costs in order to accurately cost out the plate.
Converting ounces to pounds	# Of ounces ÷ 16 (ounces) = the pound weight Example: 48 oz. ÷ 16 = 3 lbs.	You may use this when inventorying prepped items and want to convert

		the ounces to pounds.
Finding a single item cost	Case price ÷ number of items in case = single item cost Example: to find out the cost of one egg .70 (cost of a dozen eggs) ÷ 12 (# in a dozen) = .058 (cost of one egg)	You may use this to cost out a special.
Calculating usages	Inventory amount + order amount – New inventory amount = Usage 3 cases + 10 cases – 6 cases = 7 cases used	You would use this formula to calculate usage on prep sheets, freezer pulls or the Sysco order guide. Knowing usage allows you to create accurate pars that are based on usage.
Calculating sales variances	Projected sales dollar – Actual sales dollar = +/- Variance to projected sales Example: $33,030 - $28,768 = <$4,262> This means you are $4,262 under projections	You would use this when your DM asks where you are according to projections.
Calculating Sales Variance Percents	Actual sales dollar ÷ Projected sales dollar (% key) = Variance % Example: $28,768 ÷ $33,030 = 87.09% of projections have been achieved.	You would use this to find out what percent of projected dollars you have achieved. Subtract 100.00% from 87.09% to find the variance percent. (12.91%)
Theoretical food cost	Theoretical food cost is what it actually costs to produce a menu item without any waste. Each time a button is pushed in POS it tells the computer "we sold this item". When we fail to enter items sold or appropriate re-cooks and discounts the computer can't account for the items as being sold or discounted. This will drive up the actual food cost (as we account for the use of the item when we take inventory) but not affect the theoretical food cost—this drives up our waste factor.	Consistently conducting table audits and making sure your staff is trained to properly handle discounts and re-cooks will help to maintain a theoretical food cost that is realistic for your store. Rule of thumb: "If it hasn't been entered in the POS computer, it didn't happen."

Waste Factor	Actual food cost – Theoretical food cost = waste factor For example: 24.5% – 20.0% = 4.5% waste factor Although the 24.5% food cost may look good, the waste factor is high. This means we are not controlling our food as well as we should be.	You can look at theoretical food on the POS flash each week and subtract your actual food from the Budget Control Report, this will allow you to monitor your waste factor on a weekly basis. You can begin to put plans in place to control your waste and food before the period ends.
Calculating a price for a special	For example: Sausage & Eggs (prices approximate) 4 pieces of sausage = .43 2 eggs = .12 5 oz. Hash browns = .25 ¾ oz oil = .01 2 slices buttered toast = .15 1 large parsley sprig = .01 Total cost = .97 cents To find the price: 97 ÷ 14 (desired food cost) = 6.29 Taking the plate cost and dividing it by the food cost you wish to achieve will give you the price to charge for the special. Desired food costs for meal periods: Breakfast 7% - 15% Lunch 15% - 20% Dinner 20% -30%	You will need to know how much it costs to produce and item before you can figure out what to charge for the item. Be sure to keep with in the menu pricing format—all our prices end with the number "9" so your special should end with "9" as well.
Calculating food cost % on a special	Plate cost ÷ selling price = food cost % For example: you are running a dinner special that has a plate cost of $2.27 and you think you can sell it for $7.99. To find out the food cost % use the formula: 2.27 ÷ 7.99 = 28.4%	You can use this to find out food cost % based on the selling price. Then compare to the food cost range for the meal period. Do you need to increase or decrease the price?
Calculating OT	Hourly wage X 1.5 = Over time hourly rate Example: $10.00 X 1.5 = $15.00 This tells you that if Charlie the cook works over 40 hours in one week he will be paid $15.00 for each hour worked over 40 hours.	You would need to know this formula when Charlie the Cook asks you "If I work overtime how much will I make?"

Sales per man hour (Productivity)	Net sales ÷ Total labor hours = Sales per man hour (Productivity) This will tell you the sales generated for each hour of labor spent. For example: $5314.61 ÷ 214.25 = $24.80		You can use this to determine the productivity for a shift or a day of the week. As so many things can cause variances, you should first find the average Sales per man hour for a period and use that as a guideline.
Converting fractions to decimals	To convert a fraction to a decimal you would divide the upper number (numerator) by the lower number (denominator). For example: ¼ 1 ÷ 4 = .25		This comes in handy during period end inventory when items are counted as fractions. Use this formula for consistency when extending inventory.
Measurement chart	**Liquid Weight** 1 cup = 8 ounces ½ cup = 4 ounces ¼ cup = 2 ounces 2 cups = 1 pint 4 cups = 1 quart 4 quarts = 1 gallon	**Dry Weight** 16 ounces = 1 pound 8 ounces = ½ pound 4 ounces = ¼ pound 2 ounces = 1/8 pound 3 ounces = 1/3 pound	You can use this when converting recipes.
How to calculate an average	An average is a single value that summarizes or represents the general significance of a set of unequal values. Add all the values and divide by how many values = average For example: 26+83+45+72= 226 ÷ 4= 56.5		You can use this to budget for utilities. Using the P&L for period 13 you can figure what to budget for utilities using this formula: Year to date utility dollars ÷ 13 (# of periods on P&L) = amount to budget each period next year.
Calculating over shorts	Actual cash – accountable cash = Over or short For example 952.50 – 902.5 = +50.00 This means your till is over $50.00		You can use this to calculate if your till is over or short when you are doing a till audit. Yes, the computer will do this—but it's nice to know how.

Ending & beginning inventory variance and what does it mean	Beginning inventory – ending inventory = +/- variance	If you think of inventory as being a saving account then your beginning inventory is what you started the period with. Do you have more or less in your ending inventory than you started with? If you have less (spent money from your saving account) then that amount is added to purchases (the saving account). If you have more than you started with (you added to your saving account) then that amount is subtracted from purchases (the saving account)