

MATH FORMULAS

Food Cost

Beginning inventory + Purchases - Ending Inventory = Food Cost \$\$\$

\$18,000.00 + \$64,000.00 = \$82,000.00 - \$13,500.00 = \$68,500.00

Food Cost percentage

Cost of food used divided by your menu price = food cost %

\$2.20 Divided by \$10.00 = 22% or **to get your desired food cost**_\$10.00 x .22% = \$2.20

Menu price

Cost of food portion divided by your desired food cost % = Menu price

\$2.20 divided by 22% = \$10.00

Portion Cost

Cost of product divided by the number of portions = Cost of a portion

\$22.00 divided by 11 portions = \$2.00 per portion

Yield variable: Yield % x 16 oz. = Net Yield (80% of 16 oz. = 12.8 oz. EP)

Cost of product divided by net Yield or EP (Edible Portion) = cost per ounce

(\$9.00 cost of product divided by 12.8 oz. EP = \$.70 per ounce)

\$.70 x 7oz. = \$4.90 cost for a 7 oz. portion

Yield percentage or loss percentage

Change before and after weight into ounces. (16 oz. per pound)

Start with 6 pounds 4 oz. and finish with 5 pounds 2 oz.

Start with 6 x 16 oz. = 96 oz. + 4 oz. = 100 oz. End 5 x 16oz. = 80 oz. + 2 oz. = 82 oz.

Divide ending by beginning to get the yield % (82 divided by 100) = 82% yield

100% to start minus 82 % finish = 18% loss due to trim or shrink.

Labor cost %

Add all labor cost dollars. Divide labor dollars by revenue dollars = Labor cost %

\$10,000.00 labor cost divided by \$25,000.00 revenue = 40% labor cost

Inventory Turnover Ratio

Cost of food used divided by average inventory = inventory turnover ratio

Beginning inventory \$12,000.00

Purchases \$34,000.00

Ending Inventory \$8,000.00

\$12,000.00 plus \$8,000.00 = \$20,000.00 divided by 2 = \$10,000.00 average inventory

Food cost \$12,000.00 plus \$34,000.00 = \$46,000.00 minus \$8,000.00 = \$38,000.00 food cost

\$38,000.00 food cost divided by \$10,000.00 average inventory = 3.8 times turnover ratio

Mark up multiplier (Wine)

100% divided by projected % = markup multiplier

100 divided by 41% = 2.44 mark up multiplier

\$14.00 for bottle of wine divided by projected 41% = \$34.15 selling price

Or \$14.00 x 2.44 (mark up multiplier) = \$34.16 (2 ways to the same answer)

BEVERAGE

One liter = 33.8 ounces

750 Milliliters = 25.4 ounces (Standard wine bottle)

BREAK EVEN

Revenue dollars – Variable cost dollars = contribution margin. How much contribution margin is required to cover the fixed costs. When fixed costs are covered, you break even. Anything

MCFP math study test

1. If your starting inventory is \$15,800.00, you purchase \$36,000.00 in food and at the end of the month you have \$18,000.00 left in inventory, what was your food cost in dollars?

$$15,800 + 36,000 = 51,800 \text{ minus } 18,000 = \$33,800 \text{ Food cost}$$

2. If your food cost was \$33,800.00 and the starting inventory was \$15,800.00 plus purchases of \$44,000.00 what would your ending inventory be?

$$15,800 + 44,000 = 59,800 \text{ minus } 33,800 = \$26,000 \text{ Ending inventory}$$

3. Using the example of question #2, what would your average inventory be?

$$15,800 + 26,000 = 41,800 \text{ divided by } 2 = \$20,900 \text{ average inventory}$$

4. What would your inventory turnover ratio be if the following conditions existed?

Beginning inventory	\$22,000.00
Purchases	\$27,000.00
Ending inventory	\$7,000.00
Food sales	\$145,000.00

$$22,000 + 27,000 = 49,000 \text{ minus } 7,000 = 42,000 \text{ food cost}$$

$$22,000 + 7,000 = 29,000 \text{ divided by } 2 = 14,500 \text{ Average inventory}$$

$$42,000 \text{ divided by } 14,500 = 2.9 \text{ turnover ratio}$$

5. If you charge \$9.50 for a spaghetti dinner and your food cost percentage is 30%, what is the cost of your food portion in dollars?

$$9.50 \times .30 = \$2.85 \text{ food cost}$$

6 .A restaurant wants to maintain a 31 % food cost. If a pork chop dinner has a food cost per portion of \$5.10, what should the menu price be?

$$5.10 \text{ divided by } .31 = \$16.45 \text{ selling price}$$

7. You know the selling price of your items must represent a 30% food cost, what must you charge for a meal where your food cost is \$8.50?

$$8.50 \text{ divided by } .30 = \$28.33 \text{ selling price}$$

8. The actual food cost was \$50,000.00 and the actual beverage cost was \$20,000.00. In addition sales were \$225,000.00. What was the contribution margin percentage?

$$50,000 + 20,000 = 70,000 \text{ variable cost}$$

$$225,000 \text{ minus } 70,000 = 155,000 \text{ contribution margin}$$

$$155,000 \text{ divided by } 225,000 = 68.9\% \text{ contribution margin percentage}$$

9. Determine the labor cost percentage if your revenue was \$50,000.00 and

Management salaries are \$2,500.00

Cook salaries are \$3,000.00

Server salaries are \$1,500.00

Food and Beverage costs are \$14,000.00

$$2,500 + 3,000 + 1,500 = 7,000 \text{ labor dollars}$$

$$7,000 \text{ divided by } 50,000 = 14\% \text{ labor cost}$$

What is your food cost percentage?

$$14,000 \text{ divided by } 50,000 = 28\% \text{ food cost}$$

10. You want to clear \$110,000.00 in your restaurant this year. With a 30 % tax rate, how much profit do you have to make before taxes?

$$110,000 \text{ divided by } .70 = 157,143 \text{ dollars of pre tax profit}$$

$$\text{You can double check } 157,143 \times .70 = 109,999 \text{ or } 110,000 \text{ rounded}$$

11. How many guests do you need to serve in order to break even? (Break even happens when contribution margin is sufficient to cover fixed costs).

Monthly revenue	\$57,000.00
Fixed costs	\$8,000.00
Variable costs	\$31,000.00
Number of guests	6000

57,000 divided by 6000 = \$9.50 revenue per guest

31,000 divided by 6000 = 5.17 variable cost per guest

9.50 minus 5.17 = \$4.33 contribution margin per guest

\$8,000.00 fixed cost divided by \$4.33 = 1848 guests

12. You want to bid on a senior meal program. You will be paid \$4.50 per meal and your variable costs per meal are \$3.10. Your fixed costs for truck payment, insurance and other fixed expenses will be \$1,700.00 per month. How many meals do you need to serve per month to break even?

4.50 minus 3.10 = \$1.40 contribution margin per guest

\$1,700.00 fixed cost divided by \$1.40 = 1214 meals per month to break even.

13. What is the portion cost of this item?

Cost of main ingredients. \$44.00

Product loss during cooking is 8%

Cost of additional seasonings is 10% of main ingredients

The recipe yields 21 portions

44.00 x .10 = 4.40

44.00 + 4.40 = 48.40 cost of ingredients

48.40 divided by 21 = \$2.30 per portion

Note: Product loss is not needed for this question

14. What is the portion cost of this item?

Cost per lb. is \$4.40

Portion is 7 oz.

Yield is 82%

$16 \text{ oz.} \times .82 = 13.1 \text{ usable ounces EP}$

$4.40 \text{ AP divided by } 13.1 = 33.6 \text{ cents per ounce}$

$33.6 \times 7 = \$2.35 \text{ portion cost}$

15. Did you attain your budgeted food cost given the following data?

Beginning food inventory: \$18,000.00

Ending food inventory: \$12,000.00

Food purchases : \$27,000.00

Budgeted food sales were \$100,000.00

Actual food sales were 8% over budget.

Budgeted food cost was 31%

$18,000 + 27,000 = 45,000 \text{ minus } 12,000 = 33,000 \text{ food cost}$

$100,000 \times .08 = \$8,000$

$100,000 + 8,000 = 108,000 \text{ revenue}$

$33,000 \text{ divided by } 108,000 = 30.6 \% \text{ food cost}$

Budget food cost was 31% so yes you met your budgeted food cost

16. Last year you served 45,000 people and the per person check average was \$7.80. This year you expect to serve 48,000 people. You want to have 15% more in sales. What must your check average be in order to do that?

$45,000 \times 7.80 = \$351,000 \text{ revenue}$

$351,000 \times .15 = 52,650 \text{ increased revenue budget this year}$

$351,000 + 52,650 = 403,650 \text{ budgeted food revenue this year}$

$403,650 \text{ divided by } 48,000 = \$8.41 \text{ check average needed to attain the goal.}$

17. How much do you charge for a scotch on the rocks for a 1.5 ounce serving if you paid \$38.00 for the liter bottle and desire a 30% liquor cost?

$$38.00 \text{ divided by } 33.8 = \$1.12 \text{ per ounce}$$

$$1.12 \times 1.5 = 1.69 \text{ cost per drink}$$

$$1.69 \text{ divided by } .30 = \$5.62 \text{ selling price}$$

18. You are estimating \$615,000.00 in sales and your non-food (fixed) costs are estimated at \$205,000.00. If your goal is \$180,000.00 in profit, what do you need your food cost (variable)% to be to achieve your goal?

$$615,000 - 205,000 = 410,000 \text{ minus } 180,000 = 230,000$$

$$230,000 \text{ divided by } 615,000 = 37.4\% \text{ food cost}$$

19. A restaurant desires a 27% cost for wine. What is the mark up multiplier and how much should they charge for a bottle that cost them \$9.50?

$$100 \text{ divided by } .27 = 3.7 \text{ mark up multiplier}$$

$$\$9.50 \times 3.7 = \$35.15 \text{ bottle cost}$$

20. Last year, the average reservations were 380 per night but the actual customer count ranged from 350 – 410. Tomorrow, your reservations are 450. How many customers should you prepare for?

$$30 \text{ divided by } 380 = 7.9\% \text{ variance}$$

$$450 \times 7.9 = 36 \text{ customers}$$

$$450 + 36 = 486 \text{ customers}$$

21. You sell a French dip sandwich containing 5 oz. of roast beef for \$7.75. The AP price of the beef is \$5.22 per pound. Your executive chef estimates the product loss for trim to be 12%. What is the actual cost of the roast beef portion?

$$.88 \times 16 \text{ ounces} = 14.1 \text{ ounces EP}$$

$$5.22 \text{ divided by } 14.1 = 37 \text{ cents per ounce}$$

$$.37 \times 5 \text{ ounces} = 1.87 \text{ per portion}$$

22. If your budgeted food cost is 28%, what is your selling price of the item in the previous question?

1.87 divided by .28 = \$6.68 selling price

23. If you need to reduce the food cost to 25%, how much would you have to increase the selling price?

1.87 divided by .25 = \$7.48 selling price

7.48 minus 6.68 = 80 cents per meal increase

24. When analyzing the yield on prime rib, you find the AP weight is 14 lb. 2 oz. while the EP weight is 11 lb. 9 oz.. What is your actual yield %.

14 x 16 = 224 plus 2 = 226 ounces AP

11 x 16 = 176 plus 9 = 185 ounces EP

185 divided by 226 = 82% yield