Finance Math Formulas

Profit · https://kb.jeffreysummers.com/docs/finance-math-formulas/

The operation can be profitable and still go broke. Profit is an accounting conclusion; cash is what pays the bills, the lease, the payroll, and the debt, and the two can move in opposite directions for months before anyone notices. This is the reference. Every calculation that tells you whether the business can pay its obligations, carry its debt, and survive a bad quarter.

Use it two ways. Run the liquidity numbers — current ratio, days cash on hand, cash conversion — monthly, to know whether the operation can cover what is coming due. Run the debt numbers — debt service coverage, break-even cash — before you borrow, before you renew, and before you assume a good month means the business is safe. Each block names the formula, the inputs, the unit, and when it earns its keep.

Cash Flow From Operations

Formula: Operating cash flow = Net income + Depreciation and amortization − Increase in working capital

Inputs: Net income, depreciation, amortization, change in working capital

Unit: Currency per period

When to use: Monthly. This is the cash the operation actually produces, not the profit the P&L reports. A profitable operation with negative operating cash flow is borrowing to stay open.

Debt Service Coverage Ratio

Formula: DSCR = Net operating income ÷ Total debt service

Inputs: Net operating income, principal plus interest payments for the period

Unit: Ratio

When to use: Before taking any loan, and monthly while carrying one. Below 1.0 means the operation cannot cover its debt from operations. Most lenders want 1.25 or higher.

Current Ratio

Formula: Current ratio = Current assets ÷ Current liabilities

Inputs: Cash, inventory, receivables; payables, short-term debt, accrued obligations

Unit: Ratio

When to use: Monthly, to see whether the operation can cover its near-term obligations with what it can convert to cash within a year. Below 1.0 means the bills due this year exceed the assets available to pay them.

Quick Ratio

Formula: Quick ratio = (Current assets − Inventory) ÷ Current liabilities

Inputs: Current assets, inventory, current liabilities

Unit: Ratio

When to use: Monthly, and any time cash gets tight. This strips out inventory because inventory is not cash until it sells. A current ratio that looks safe and a quick ratio that does not means the operation is counting on food it has not sold yet.

Days Cash On Hand

Formula: Days cash = Cash on hand ÷ (Operating expenses ÷ Days in period)

Inputs: Cash balance, total operating expenses, period length

Unit: Days

When to use: Monthly. This is how long the operation survives if revenue stops today. Most independent restaurants carry under 30 days; that is a fact to know, not a comfort to have.

Operating Cash Flow To Sales

Formula: OCF to sales = Operating cash flow ÷ Total sales

Inputs: Operating cash flow, total sales

Unit: Percentage

When to use: Monthly, to see how much of every sales dollar converts to cash. A falling ratio with rising sales means the operation is growing on paper and starving in cash.

Break-Even Cash Position

Formula: Break-even cash = Beginning cash + Projected cash in − Projected cash out

Inputs: Opening balance, expected receipts, expected payments

Unit: Currency

When to use: Weekly, on a 13-week rolling basis. This is the number that tells you, in advance, which week the operation runs out of money — while there is still time to do something about it.

Inventory Days On Hand

Formula: Inventory days = (Average inventory ÷ Food cost) × Days in period

Inputs: Average inventory, food cost, period length

Unit: Days

When to use: Monthly, as a cash metric rather than a turnover metric. Every day inventory sits is a day cash is locked in product instead of paying bills.

Accounts Payable Aging

Formula: AP aging = Total payables, split into 0–30, 31–60, 61–90, and 90+ day buckets

Inputs: Payables by vendor and by age

Unit: Currency by bucket

When to use: Weekly. A rising 60-plus bucket means the operation is financing itself on its suppliers, and suppliers stop extending that credit without warning.

Fixed Versus Variable Cost Split

Formula: Fixed costs are constant across volume; variable costs move with sales. Contribution margin ratio = (Sales − Variable costs) ÷ Sales

Inputs: Total sales, fixed cost total, variable cost total

Unit: Percentage

When to use: Before any growth decision. The higher the fixed-cost share, the more volume the operation needs to break even — and the harder it falls when volume drops.

Owner Compensation And Draw Policy

Formula: Owner draw = Net profit − Amount reinvested − Amount reserved for taxes and contingency

Inputs: Net profit, reinvestment target, tax reserve, contingency reserve

Unit: Currency per period

When to use: Quarterly, decided in advance and written down. An owner who draws whatever is left has no reserve, no reinvestment, and no policy — only a habit that fails the first bad quarter.

Working Capital Cycle

Formula: Cycle = Days inventory outstanding + Days sales outstanding − Days payables outstanding

Inputs: Inventory days, receivable days, payable days

Unit: Days

When to use: Monthly. This is how long one dollar is tied up between paying a supplier and getting it back from a Guest. A shortening cycle frees cash; a lengthening one quietly consumes it.