Master Formula & Financial Ratios Sheet

STUDENT NAME: ..... DATE: ..... GOAL: **Score 5 · sidtutor.com**

1. Fundamental Accounting Equations & Financial Statements

The Balance Sheet Equation

`Assets = Liabilities + Owner's Equity`

- **Assets:** Economic resources owned (Cash, Accounts Receivable, Inventory, Equipment).
- **Liabilities:** Debts owed to outside parties (Accounts Payable, Bank Loans, Bonds).
- **Owner's Equity:** Residual net worth owned by stockholders (Retained Earnings, Paid-in Capital).

The Multi-Step Income Statement

- **Gross Profit** = Total Revenue - Cost of Goods Sold (COGS)
- **Operating Income (EBIT)** = Gross Profit - Operating Expenses (SG&A, Rent, Salaries)
- **Pre-Tax Income** = Operating Income - Interest Expense
- **Net Income (Bottom Line)** = Pre-Tax Income - Taxes

2. Profitability Margins & Break-Even Analysis (CVP)

Profit Margin Formulas

- **Gross Margin %** = (Gross Profit / Total Revenue) × 100
- **Operating Margin %** = (Operating Income / Total Revenue) × 100
- **Net Profit Margin %** = (Net Income / Total Revenue) × 100

Break-Even & Contribution Margin

- **Unit Contribution Margin (CM)** = Price per Unit (P) - Variable Cost per Unit (VC)
- **Contribution Margin Ratio** = Unit CM / Price = CM / Revenue
- **Break-Even Units (Q_{BE})** = Total Fixed Costs / (P - VC)
- **Break-Even Sales ($)** = Total Fixed Costs / Contribution Margin Ratio
- **Target Profit Units** = (Fixed Costs + Target Profit) / Unit CM

3. Financial Health, Liquidity & Solvency Ratios

RATIO CATEGORY	RATIO NAME & FORMULA	STANDARD TARGET & FINANCIAL INTERPRETATION
Liquidity Ratios (Short-Term Solvency)	**Current Ratio** = Current Assets / Current Liabilities	Ideal: > 1.5 to 2.0. Measures ability to pay obligations due within 1 year.
	Quick Ratio (Acid-Test) = (Cash + Marketable Securities + A/R) / Current Liabilities	Ideal: > 1.0. Eliminates slow-moving inventory from liquid asset calculation.
Working Capital	**Working Capital** = Current Assets – Current Liabilities	Positive net liquid capital available to fund daily operational cycles.
Leverage & Solvency	**Debt-to-Equity Ratio** = Total Liabilities / Total Stockholders' Equity	Lower is safer (< 1.5). High debt-to-equity indicates heavy financial risk.
	Return on Equity (ROE) = Net Income / Stockholders' Equity	Measures management's efficiency at generating profits from owner capital.

4. Cash Flow Statement Dimensions

1. Operating Cash Flow (CFO)

Cash generated from core business operations, sales collections, and inventory payments.

2. Investing Cash Flow (CFI)

Cash spent on buying or selling long-term property, plant, equipment, or acquisitions.

3. Financing Cash Flow (CFF)

Cash flows from issuing equity stock, borrowing bank loans, repaying debt principal, or paying dividends.

Master Formula & Financial Ratios Sheet

5. Personal Finance & Wealth-Building Calculations

Personal Net Worth & Time Value of Money (TVM)

- **Personal Net Worth** = Total Personal Assets - Total Personal Liabilities
- **Future Value (Compound Interest):**

$$FV = PV \times (1 + r/n)^{n \times t}$$

(PV = Present Value, r = annual interest rate, n = compounding frequency, t = years)

- **The Rule of 72 (Doubling Time):**

Years to Double ≈ 72 / (Annual Interest Rate %)

Budgeting, Credit & Debt Management

- **50/30/20 Budgeting Rule:**
  - **50% Needs:** Housing, groceries, utilities, minimum debt.
  - **30% Wants:** Dining out, entertainment, travel.
  - **20% Savings & Debt Acceleration:** Emergency fund, retirement, extra debt payoff.
- **Debt Elimination Strategies:**
  - **Snowball:** Pay smallest balance first (behavioral momentum).
  - **Avalanche:** Pay highest interest rate debt first (mathematical optimization).

6. FICO Credit Score Composition & Retirement Accounts Matrix

ACCOUNT / METRIC	KEY MECHANICS & TAX STATUS	STRATEGIC ADVANTAGE & AP EXAM RULE
FICO Credit Score (300–850)	**35%** Payment History + **30%** Credit Utilization (<30% ideal) + **15%** Length of Credit + **10%** Credit Mix + **10%** New Credit Inquiries.	High credit score lowers interest rates on auto loans, mortgages, and business credit lines.
Traditional 401(k) / IRA	**Pre-tax contributions:** Contributions reduce taxable income today; withdrawals in retirement are taxed as ordinary income.	Optimal when current tax bracket is higher than expected retirement tax bracket. Always capture employer match!
Roth IRA / Roth 401(k)	**Post-tax contributions:** Contributions are made with after-tax dollars; growth and qualified withdrawals in retirement are **100% tax-free**.	Ideal for young investors/students currently in a low tax bracket. Maximum compounding benefit!

7. The 4-Step AP Business Decision Matrix Framework (FRQs 2–4)

Step 1 & 2: Define Criteria & Score Options

- **Step 1:** Identify essential decision criteria based on scenario constraints (e.g., ROI, initial cost, implementation time, risk level).
- **Step 2:** Evaluate competing alternatives against weighted criteria using quantitative and qualitative evidence.

Step 3 & 4: Evaluate Trade-offs & Defend Choice

- **Step 3:** Explicitly analyze trade-offs and opportunity costs (what is sacrificed by not choosing Alternative B).
- **Step 4:** Formulate a final recommendation with proactive risk mitigation strategies.