

3 Step Simplified Formula for Successful Business Start-Up

by Arnold R. Jaffa

Costing-Pricing Your Product
Determining Sales Required for Break-Even
Determining Cash Required for Start-Up
Determining Purchase Price of a Business

3-Step Simplified Formula for Successful Business Start-Up

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Foreword

The following is based on my experiences of counseling many hundreds of people on a one to one basis. For the most part they did not have the foggiest idea where to start in their attempt to establish themselves in business. Have you decided that your idea can become a marketable product? The 3 Step Formula that I developed will help you determine what your needs are to be successful in establishing yourself in business and making your dreams come true.

If you can do addition, subtraction, multiplication and division, you are already equipped to proceed with what is ahead. Although we live in the computer age you don't need one to be a successful startup. Some people think that a computer is a money making machine they can't do without, but that is not true. It's only a labor saving device and becomes a useful tool after you are established and experienced in your business for some time. The exception to this, of course, would be businesses that use computers to generate the product.

The 3 Step Formula will also help in developing your business plan which simply is the road map for reaching your goal. Your business plan should be revised as often as needed as you progress from infancy to maturity in your newly established business. As you gain knowledge, experience and wisdom, you will be rewarded based on your applied effort. The Primer stating my one liners at the end of this book, is an outgrowth of my own business experiences and should help you to succeed more quickly.

I would like to thank my daughter Audrey and my son-in-law Jeff, for helping me when I added the third step and final text for completing this project in its entirety. Thank you to my wife Doris who stood beside me all through the years while I made the intensive effort to stay in business and succeed. I thank my three children Gene, William, and Audrey to whom I was largely unavailable during the years that I spent building up my business. Thank you to James Barrett, Deborah Lima, and Brianna Svelmoe for helping with typographical changes.

Since August 1982 I have volunteered to counsel people on a one to one basis through SCORE, Counselors to America's Small Business, a resource partner with the U.S. Small Business Administration. During the time spent counseling these people I have been inspired more than ever to help promote self-employment and private enterprise which lead to employment opportunities for others as well. My motto is "When someone fails we all lose, when someone succeeds we all benefit."

I wish you good health and good luck in your endeavors to succeed in business.

Introduction

We start with an idea and follow through until it develops into a marketable product. The **Costing/Pricing** formula provides the profit per unit and selling price per unit based on a given profit margin percentile. The profit and selling price per unit is applied in the **Break-Even** formula which in turn provides unit sales and required sales revenue to reach Break-even.

We begin with just gathering the cost numbers for your product and then proceed to apply the information in the costing/pricing formula (see example pgs. 29-31).

After you are experienced in your business you can apply a second method for costing/pricing using a factor (see examples pgs. 33-34). A third method for costing/pricing is based on beginning with a suggested selling price and a given profit margin percentile. The result is the Limit of Cost (see example page 16). In review, all of the costing/pricing methods will determine profit per unit in dollars or cents enabling you to apply the result in the Break-even formula.

Part of the expense requirements is the provision for loan pay-back or capital infusion. Lending your own funds to start up a business is the same as borrowing money from a lending institution, thus provision for repayment should be established for the loan. Your local lending officer can provide the loan repayment amounts for any term based on current interest rates. This pay-back to yourself or to the lender is another item that should be added in when figuring your Break-even as part of the $(A + B + C)$ on page 32. A pay-back for investment is one of the required criteria for any business. If the loan cannot be paid back in a timely manner, it means that you are eating up money and the business may not be a viable or worthwhile venture.

On pages 36-37, I have illustrated reserve amounts in anticipation for slow paying accounts or lack of sales due to seasonal factors for any given period which will slow down receivables. The illustration is for 1 month - 2 months - 3 months. Your start-up may require funds for as long as 6 months to a year.

Adding your key money for start-up plus projected funds for all expenses including your compensation will give you an indication of what your total needs are. Now you can see the progression of Costing/Pricing to Break-even. Daily business monitoring will help you to determine at all times whether you are staying even, going ahead, or falling behind.

When costing/pricing each service, retail or manufacturing product, prepare a dated worksheet identified with a style number and description to be referenced for future comparison needs. Note that the profit for a service business is for each unit hour. In all other types of business the profit is for each unit piece.

The Costing/Pricing and Break-even formulas interact and are applicable in any type of business. The formulas are combined to help you forecast how much money you need for startup and ongoing operations while reaching for Break-even or better.

Key Steps Leading to Successful Business Start-up

1. Idea
2. Determining whether there is a need or demand for your product.
3. Costing/Pricing your product.
4. Test marketing your product.
5. Protecting your idea.
6. Surrounding yourself with the best qualified people regardless of task.
7. Determining the sales revenue required for Break-even.
8. Determining total required startup funds based on marketing projections to sustain business until actual Break-even is reached or better.
9. Determining pay back period for initial investment.
10. Preparing a business plan based on projected goals set forth.
11. Maintaining a record-keeping system to monitor your daily activity and to measure your progress.
12. Planning ahead.
13. Maintaining flexibility.
14. Knowing at the end of each day whether you are going ahead--staying even--or falling behind.

Criteria for Cost-Pricing and Break-Even Formulas

You may find yourself ready to startup a new business venture feeling comfortable that your service, manufactured or retail product is marketable, based on a suggested selling price. Do you and the product meet the following criteria?

1. Product or Service Qualifications
Need - Demand - Unique - Different - Better
2. Cost of Product
A) Labor, B) Freight in, C) Material -or- finished product for retail
3. Cost of Sales
A) Commission Only -or- Salary and Expenses -or- Draw Against Commission
B) Advertising
4. Costing-Pricing
Is your costing and pricing on target?
Is it a realistic margin of profit on cost or selling price?
Does it have an acceptable marketable price?
Does your profit margin allow you to be competitive and, at the same time, provide an ample profit to make Break-even while sustaining and giving you an opportunity to grow?
5. Marketing
Do you have the capabilities to sell?
Can you promote your product to create demand?
What is the competition in your chosen market?
6. Expenses
Have you examined: a) administrative costs, including compensation
b) fixed and variable operating costs.
7. Start-up Investment Needs
What is required capital investment?
What is expected pay-back period of investment?
What is projected life expectancy of product?
8. Break-even
Are your sales, billing and receivables on schedule to meet cash flow needs?
Collections are just as important as sales.
At the end of the day, do you know whether you are making Break-even, going ahead or falling behind, to your satisfaction?

NOTE: Product Medium: Unit of Measure:
liquid measure gallon
solid measure square foot
weights pound
piece each
time hour

Glossary

PM%	Profit Margin Percentile
C	Cost/Unit
P	Profit/Unit
SP	Selling Price/Unit
SPF	Selling Price Factor
A	Administrative Expenses including Compensation
B	Fixed Expenses
C	Variable Expenses
D	Working Capital Loans (Pr + I)
E	Purchase of a Business Loan (Pr + I)
Pr	Principal
I	Interest
B/E	Break-Even
BEF	Break-Even Factor

Principles of Simplified Formula

Costing/Pricing

Cost of Product per Unit x Suggested Profit Margin Percentile (%) = Profit per Unit Cost

Cost of Product per Unit + Profit per Unit Cost = Selling Price per Unit

Profit Margin Percentile (%) per Unit Selling Price

$$\frac{\text{Profit per Unit Cost}}{\text{Selling Price per Unit}} = \text{Profit Margin Percentile (\%)} \\ \text{per unit selling price}$$

Break-even

Total Expenses include

Administration - Compensation
$$\frac{\text{Fixed and Variable Expenses}}{\text{Profit per Unit Cost in}} = \text{Unit Sales Required for Break-Even}$$

in \$\$ or cents

Unit Sales Required x Selling Price per Unit = Sales Revenue Required for Break-Even

Determining Daily Revenue Required per Working Day

$$\frac{\text{Projected Annual Sales Revenue Required}}{\text{Annual Number of Working Days}} = \text{Daily Revenue Required per Working Day}$$

For Break - Even

NOTE RE: Pages 29-31 - Costing/Pricing for All Industries

When figuring the preliminary selling price and actual selling price, the unit cost of product in dollars or cents and cost of sales in percentile (%) are a given. When necessary, the actual unit selling price is raised in order to reach the profit margin percentile (%) goal while maintaining sales cost percentile (%), thus arriving at the actual selling price.

Ratios

1. $(C) \text{ Cost} / \text{Unit} \times (PM\%) = (P) \text{ Profit/Unit}$
2. $(C) + (P) = (SP) \text{ Selling Price/Unit}$
3. $(SP) - (C) = (P) \text{ Profit/Unit}$
4. $P / C = PM\% \text{ on } C$
5. $P / SP = PM\% \text{ on } SP$
6. $SP / C = (SPF) \text{ Selling Price Factor}$ $1.0 + PM\% \text{ on } C = \text{Selling Price Factor}$
7. $(C) \times (SPF) = (SP)$
8. $SP / SPF = (C) \text{ Cost Limit}$
9. $SP / P = (BEF) \text{ Break Even Factor or additional sales req for each additional dollar of expense}$
10. $[(C \times PM\%) + C] / C \times PM\% = (BEF) \text{ Break Even Factor or additional sales req for each additional dollar of expense}$
11. $\frac{(\text{Expenses } A+B+C+D)}{P/\text{Unit}} = \text{Unit Sales Req for } x \text{ } \frac{SP/\text{Unit}}{(BE) \text{ Break Even}} = \frac{\text{Sales Req for BE}}{(A+B+C+D) \text{ Expenses}} = (BEF) \text{ Break Even Factor or additional sales req for each additional dollar of expense}$
12. $(\text{Expenses } A+B+C+D) \times BEF = \frac{\text{Sales Rev Req for BE}}{SP/\text{Unit}} = \text{Unit Sales Req for BE}$
13. $\text{Sales Rev Req for BE} / BEF = \text{Expense limit } (A+B+C+D)$
14. $\text{Projected annual expenses } A+B+C+D = \text{gross profit required for BE}$
15. For self employed in a service business, $SPF = 1.0$
 $BEF = 1.0$
16. When the profit margin on cost equals 100%, $SPF = 2.0$
 $BEF = 2.0$

Business Costs

Costing/Pricing

Cost of Product or Service

I.

$$SP - C = P$$



$$\frac{P}{SP} = \text{PM\% on SP}$$

II.

$$C \times \text{PM\%} = P$$



$$C + P = SP$$



$$\frac{P}{C} = \text{PM\% on C}$$

$$\frac{SP}{C} = S PF$$

III.

$$\frac{SP}{P} = \text{BEF}$$

$$\frac{(C \times \text{PM\%}) + C}{C \times \text{PM\%}} = \text{BEF}$$

Break Even

Operating Cost

Expenses

$$\frac{A + B + C}{P/\text{Unit}} = \text{Unit Sales} \times SP/\text{Unit} = \frac{\text{Sales revenue req for BE}}{A + B + C} = \text{BEF}$$

Any additional expenses during the year, apply BEF to determine additional sales required for Break Even.

Profit Per Unit for Different Types of Business

Manufacturing



Labor & Materials



Profit per each
Unit Piece

Retail/Wholesale



Finished Product



Profit per each
Unit piece

Service



Hours of Service



Profit per each
Unit Hour

Costing Pricing Your Product or Service

Method I

$$C \times PM\% = P$$

$$\$1.00 \times 50\% = .50$$

$$C + P = SP$$

$$\$1.00 + .50 = \$1.50$$

$$\frac{SP \$1.50}{C \$1.00} = 1.5 \text{ SPF}$$

Proof:

$$C \times SPF = SP$$

$$\$1.00 \times 1.5 = \$1.50$$

$$\frac{SP \$1.50}{SPF 1.5} = \$1.00 \text{ cost limit}$$

Table 1		
Given: Cost \$1.00		
PM% on Cost	SPF	BEF
40%	1.4	3.5
45%	1.45	3.222
50%	1.5	3.0
55%	1.55	2.8181
60%	1.6	2.666

Method II

$$Sp - C = P$$

$$\$1.50 - \$1.00 = .50$$

Determining Break Even Factor

Method I

$$\frac{SP \$1.50}{P .50} = 3.0 \text{ BEF or } \$3.00 \text{ additional sales req for each additional dollar of expense}$$

Method II

$$\frac{(C \times PM\%) + C}{(C \times PM\%)} = \frac{(\$1.00 \times 50\%) + \$1.00}{(\$1.00 \times 50\%)} = 3.0 \text{ BEF or } \$3.00 \text{ additional sales req for each additional dollar of expense}$$

Method III

$$\frac{\$15000 \text{ Expenses A+B+C}}{.50 \text{ P/Unit}} = \frac{30000 \text{ unit} \times \$1.50 \text{ SP/Unit}}{\text{sales req for BE}} = \frac{\$45000 \text{ sales req for BE}}{\$15000 \text{ A+B+C}} = 3.0 \text{ BEF or } \$3.00 \text{ additional sales req for each additional dollar of expense}$$

Proof:

$$\text{Annual Expenses A+B+C} \\ \$15000 \times 3.0 \text{ BEF} = \$45000 \text{ Sales req for BE}$$

Table 2	
Given: 250 wk days/yr	
Expenses	
A+B+C \$15000 = \$60/day	
Unit Sales 30000 = 120/day	
Sales \$45000 = \$180/day	

Cost of Shrinkage and Application of (BEF) Break Even Factor

$$\frac{.50 P}{\$1.50 SP} = 33 \frac{1}{3}\% \text{ PM on SP}$$

$$\frac{.50 P}{\$1.00 C} = 50\% \text{ PM on C}$$

50% PM on cost is equivalent to 33 1/3% PM on SP

\$45000 x 33 1/3% PM on SP = \$15000 gross profit
Sales req
For BE

\$45000 - \$15000 = \$30000 Cost
Sales Req Gross Profit
for BE

\$30000 x 3% = \$900 Shrinkage
Cost Shrinkage
 Rate

\$900 Shrinkage x 3.0 BEF = \$2700 additional sales req for BE

			<u>Sales Req for BE</u>
Proof:	A+B+C	\$15000 x 3.0 BEF	\$ 45000
	Annual P/I	\$ 1785 x 3.0 BEF	\$ 5355
	Shrinkage	<u>\$ 900</u> x 3.0 BEF	<u>\$ 2700</u>
	Total Expenses	<u>\$17685</u>	
		.50 P/Unit Unit Sales	
		Req for BE	
		= 35370 x \$1.50 SP/ Unit = \$ 53055	Total Sales req for BE

Note: For W/C and or start up funds
\$7000 loan @ 10% 5 yr term P/I \$1785 yr

<p>Table 3 Given: 250 wk days/yr</p> <p>Expenses \$17685 = \$71/day A+B+C</p> <p>Unit Sales 35370 = 142/day</p> <p>Sales \$53055 = \$213/day</p>

Determine Gross Hourly Labor Cost Including Add-ons

Add-ons

- a. Social Security
- b. Federal Unemployment Insurance
- c. State Unemployment Insurance
- d. Workers Compensation Insurance
- e. Holidays
- f. Vacation
- g. Miscellaneous Break Times
- h. Medical Insurance
- i. Pension Contribution
- j. Miscellaneous

1.
$$\frac{\text{Cost of Add-ons (a-j)}}{\text{Basic Hourly Cost}} = \text{Add-on Percentile}$$

$$\frac{\$ 2.00}{\$ 6.00} = 33 \frac{1}{3}\% \text{ of Basic Hourly Cost}$$
2.
$$\begin{array}{rclcl} \text{Basic Hourly Cost} & \times & \text{Add-On Percentile} & = & \text{Cost of Add-Ons} \\ \$6.00/\text{Hour} & \times & 33 \frac{1}{3}\% & = & \$2.00/\text{hour} \end{array}$$
3.
$$\begin{array}{rclcl} \text{Basic Hourly Cost} & + & \text{Cost of Add-Ons} & = & \text{Actual hourly cost} \\ \$6.00 & + & \$2.00 & = & \text{Including add-ons} \\ & & & & \$ 8.00 \end{array}$$

NOTE. Man Hour Cost For Each Add-On

Given- Annual Cost \$500

2 people @ 2000 hrs ea = 4000 hrs

$$\frac{\text{Annual Cost of Add-On}}{\text{Total Annual Man Hours}} = \text{Cost/Man Hour}$$

$$\frac{\$500}{4000 \text{ Hours}} = .125 \text{ dollars/Man Hour}$$

Determine Gross Hourly Labor Cost Including Add-ons

Given: \$6.00/hour Basic hourly cost	X	add on percentile	=	Hourly cost of add-ons
State employee training		1.1%		.066
State unemployment insurance		3.4%		.204
Federal unemployment insurance		.8%		.048
FICA		6.2%		.372
Medicare		1.45%		.087
1 week holiday		2.0%		.12
1 week vacation		2.0%		.12
Break time		5.0%		.30
Pension		3.0%		.18
Medical insurance		5.0%		.30
Workers compensation		2.0%		.12
Miscellaneous		5.0%		.30
Total		37%		\$2.22

Basic hourly cost	X	add on percentile	=	Hourly cost of add-ons
\$6.00/hour	X	37%	=	\$2.22/hour
Basic hourly cost	+	Cost of add-ons	=	Actual hourly cost including add-ons
\$6.00/hour	+	\$2.22/hour	=	\$8.22/hour

Application of Hourly Divisor and Gross Pay Divisor

$$\begin{array}{rclclcl} \text{Annual Base Pay} & & \text{Hourly Base Pay} & & \text{Daily Base Pay} & & \text{Actual Hourly Pay including Add-ons} \\ \$18,750 & = & \$9.375 & \times & \$75.00 & = & \$12.50 \\ 2000 \text{ hrs} & & & & 6 \text{ hrs Divisor} & & \end{array}$$

$$\begin{array}{rclclcl} \text{Actual Hourly Pay} & & \text{Hourly Base Pay} & & \text{Hourly Add-on} & & \text{Add-on Annual Cost} \\ \text{including Add-ons} & & & & & & \\ \$12.50 & - & \$9.375 & = & \$3.125 & \times & 2000 \text{ hrs} = \\ & & & & & & \$6,250 \end{array}$$

$$\begin{array}{rclclcl} \text{Actual Hourly Pay} & & & & \text{Annual Pay} & & \\ \text{including Add-ons} & & & & \text{including Add-ons} & & \\ \$12.50 & \times & 2000 \text{ hrs} & = & \frac{\$25,000}{\$6,250} & = & 4 \text{ Gross Pay Divisor} \end{array}$$

$$\begin{array}{rcl} \text{Proof:} & \frac{\text{Annual Gross Pay}}{4} & = \\ & \frac{\$25,000}{4} & = \\ & \text{Gross Pay Divisor} & \end{array} \quad \text{\$6,250 Annual Cost of Add-ons}$$

$$\begin{array}{rclclcl} \text{Annual Gross Pay and Add-Ons} & & \text{Annual Cost of Add-Ons} & & \text{Annual Base Pay} \\ \$25,000 & - & \$6,250 & = & \$18,750 \end{array}$$

$$\begin{array}{rclclcl} \text{Annual Cost of Add-Ons} & / & \text{Annual Base Pay} & = & \text{Add-On \%} \\ \$6,250 & / & \$18,750 & = & 33 \frac{1}{3} \% \end{array}$$

$$\begin{array}{rclclcl} \text{Proof:} & \text{hourly base} & \text{Add-on \%} & & & & \\ & \$9.375 & \times & 33 \frac{1}{3} \% & = & \$ 3.125 \text{ Dollars Add-on} \\ & & & & & + & \frac{9.375 \text{ Base hourly}}{12.50 \text{ Actual hourly Pay}} \end{array}$$

Note 1: lower gross pay divisor increases Add-on percentile

Note 2: lower hourly divisor increases Add-on percentile

Introduction to Costing / Pricing

Cost of Product or Service \$\$ or Cents	x	Suggested Margin of Profit	=	Profit in \$\$ or Cents per Unit Cost
\$1.00		50%		.50

Cost of Product	+	Profit	=	Selling Price
\$1.00		.50		\$1.50

Proof: $\frac{\text{Profit } .50}{\text{Cost } 1.00} = 50\% \text{ PM\% on cost}$

$\frac{\text{Profit } .50}{\text{Selling Price } \$1.50}$	=	Profit per Selling Price Unit 33 1/3%
---	---	--

50% Profit per Unit Cost	is equivalent to	33 1/3% Profit per Unit Selling Price
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Cost applies to a product or service business

- Example:
- | | |
|---------------------------------|-------------------|
| 1. Service Business | \$1.00/hr |
| 2. Retail or wholesale business | \$1.00 each piece |
| 3. Manufacturing business | \$1.00 each piece |

Determine Selling Price Factor

Method 1. $\frac{SP}{C} \frac{\$1.50}{\$1.00} = 1.5 \text{ SPF}$

Method 2. $\frac{P}{C} + 1.0 = \text{SPF}$
 $\frac{.50}{1.00} + 1.0 = 1.5 \text{ SPF}$

Method 3. $\text{PM\% on Cost} + 100\% = \text{SPF}$

$50\% + 100\% = 150\%$
 $.5 + 1.0 = 1.5 \text{ SPF}$

Proof:

	C	X	SPF	=	SP
	\$1.00	X	1.5	=	\$1.50

Break-Even

Break-Even formula provides total sales units required for the break even and total sales revenue required for break even.

Administrative expenses Including compensation A	Fixed Expenses B	Variable Expenses C
\$25000 + \$5000 A + (B+C) -----	=	Sales units required for break even 60000 units
Profit for each Unit .50		
Sales Units Required for B/E	X	Selling price = Total Sale Revenue Per Unit required for B/E
60000 units		\$1.50 each \$90000

Projected daily sales required for Break Even

Total Annual Sales Revenue Required for B/E ----- 250 work days/year	=	Daily Sales Revenue Required for B/E
<u>\$90000</u> 250 days		= \$360 per day

<u>Sales Required for B/E</u> A+B+C	=	Additional Sales Required for each additional dollar of expense
<u>\$90000</u> \$30000	=	\$3.00

<u>\$90000</u> \$30000	=	3.0 B/E Factor (BEF)
---------------------------	---	----------------------

Additional Expenses	X	BEF or additional sales required For each additional dollar of Expense	=	Additional Sales Required for B/E
---------------------	---	--	---	--------------------------------------

Sales Revenue Required for BE <u>\$90000</u> 3.0 BEF	=	Limit of Expenses A+B+C \$30000
--	---	---------------------------------------

- Note: 1. Compensation includes add-ons
2. Annual P/I payments for working capital X BEF = Additional sales required for BE

TEST

Given

C = \$1.00

PM% = 40%

On cost

A + B + C = \$30000-

250 work days/year

What is ?

1. Profit / Unit
2. SP/Unit
3. PM% on SP
4. What is SP factor
5. Sales Units req for B/E
6. Sales Revenue req for B/E
7. Sales revenue req/day
8. How much additional sales required for each additional dollar of expense
9. What is B/E factor

Operating Expense Costs for Doing Business

1. (A) Administration Expenses including Compensation
2. (B + C) Fixed or Variable expenses including the following and other things that pertain to your business:
 - Start-up costs
 - Accounting
 - Legal
 - Organizational Fees
 - Website
 - Travel
 - Trade Shows
 - Rent
 - Insurance
 - Fire-liability
 - Product liability
 - Omission and error
 - Vehicle (insurance, DMV, fuel, maintenance, replacement cost)
 - Utilities
 - Security
 - Advertising
 - Telephone
 - Internet (Website)
 - Bookkeeping
 - (For Retail business) - Labor costs
 - (Hidden expenses)
3. Working Capital to operate a business is ordinarily money borrowed for which principal and interest payments (D) are part of the expenses included in the B/E.

$$\frac{A + B + C + D}{P/\text{Unit}} = \text{Sales Units Required for B/E} \times \text{SP/unit} = \text{Total Sales Required for B/E}$$

Sales Projection:

$$\frac{\text{Total Annual Sales Required for B/E}}{\text{Annual Work Days}} = \text{Daily Sales Required for B/E}$$

$$\frac{\text{Total Sales Required for B/E}}{A + B + C + D} = \begin{matrix} \text{Additional Sales Dollars Required for each} \\ \text{Additional dollar of expense} \\ \text{Or} \\ \text{B/E Factor} \end{matrix}$$

Costing-Pricing Example

Cost Worksheet

6-12-04

Drinking Bottle

Material

Bottle	.10
Cover	.05
Washer	.01
Vent Piece	.01
Mouth Piece	.02
Straw	.01
Carton (36pk-.72)	.02
(Freight is not included, everything delivered)	
Total	.22

Labor

Hourly cost of Labor including add-ons - \$8.00/hr

assembly including carton, packaging/sealed 3 min.

Total 3 minutes

$$C \times PM\% = P$$

$$.80 \times 50\% = .40$$

$$\text{total minutes} \times C/\text{min}$$

$$3 \times .13333 = .40$$

$$C + P = SP$$

$$.80 + .40 = \$1.20$$

$$\frac{P}{C} \frac{.40}{.80} = 50\% \text{ PM on Cost}$$

$$\frac{P}{SP} \frac{.40}{\$1.20} = 33 \frac{1}{3}\% \text{ PM on SP}$$

$$\frac{SP}{C} \frac{1.20}{.80} = 1.5 \text{ SP Factor}$$

1. material	.22
2. labor	<u>.40</u>
3. total C of Mat/labor	.62
4. total C of Mat/lab	
x shrinkage rate (10%)	.06
5. suggested SP (\$1.20)	
x comm. Rate 10%	<u>.12</u>
6. total C lines (3-4-5)	.80
7. total C x PM% =	P
.80 x 50% =	.40
8. C + P =	SP
.80 + .40 =	\$1.20

Proof: C x SP Factor = SP

$$.80 \times 1.5 = \$1.20$$

Break-Even Examples

1.

$$\frac{\$50,000}{\text{Profit/unit } .40} = \frac{\text{Total Sales Units Required for B/E}}{125,000/\text{units}} \times \text{SP } \$1.20 = \frac{\text{Total Sales Required for B/E}}{\$150,000} = \$600/\text{day} / 250 \text{ days}$$

$$\frac{\text{Total Sales Required for B/E } \$150,000}{\text{A + B + C } \$50,000} = \frac{3.0 \text{ BEF or } \$3.00}{\text{Additional Sales Required for each additional dollar of expense}}$$

$$\text{Cost of mould } \$20,000 \quad \text{D (Pr, I)}$$

$$\$20,000 \text{ loan for 5 yrs @ 10\% interest} = \$5106$$

$$\text{D } \$5106 \times \frac{\text{Additional sales Required for ea. additional dollar of expenses}}{\$3.00} = \text{Total additional Sales required for B/E } \$15,318$$

2.

$$\frac{\text{A + B + C + D } \$50,000 + \$5106}{\text{Profit/Unit - .40}} = \frac{\text{Total Unit Sales Required for B/E } 137,765/\text{Units}}{\text{SP } \$1.20} = \frac{\text{Total Sales Required for B/E } \$165,318}{250 \text{ days}} = \$662/\text{day}$$

Adding cost of shrinkage increases the amount of additional sales required for B/E.

$$\text{Total Sales Required for B/E } \$150,000 \times \text{PM\% on SP } 33 \frac{1}{3}\% = \text{Profit } \$50,000$$

$$\text{Total Sales Required for B/E } \$150,000 - \text{Profit } \$50,000 = \text{Cost } \$100,000$$

$$\text{Cost } \$100,000 \times \text{Shrinkage\% } 10\% = \text{Total Dollar Shrinkage } \$10,000$$

$$\text{Shrinkage } \$10,000 \times \frac{\text{Additional Sales Required for each additional dollar of expense}}{\$3.00} = \text{Additional Sales Required for B/E } \$30,000$$

3.

$$\text{Total Sales Required for B/E } \$165,318 + \text{Additional Sales Required for B/E } \$30,000 = \text{Total Sales Required for B/E } \$195,318 = \$782/\text{day} / 250 \text{ days}$$

Break Even Examples (Cont'd from Page 20)

\$50000 Loan for working capital (D) @ 10% 5 yr term = D \$12750/yr P/I

D	X	BEF	=	Additional sales requirement for B/E
\$12750	X	3.0	=	\$38250/yr

A + B + C		\$50000		
D		\$12750		
P/I for mould		\$ 5106		
Shrinkage		<u>\$10000</u>		
Total Expenses		<u>\$77856</u>	=	Unit Sales Req for B/E X SP = Sales Req for B/E
		.40 profit/unit		194640 X \$1.20 = <u>\$233568</u> = \$935/day
				250 Days

Proof: Applying BEF or additional sales req for each additional dollar of expense

A + B + C + D		Total Expenses		Sales Req for B/E
\$77856	X	BEF	=	\$233568
		3.0		
		Or		
		\$3.00 for each		
		additional dollar of expense		

Annual Sales Req for B/E	Unit Sales Req for B/E	Daily Sales Req
\$150000	125000 units	\$600/day
\$165318	137765 units	\$662/day
\$195318	162765 units	\$782/day
\$233568	194640 units	\$935/day

Break Even Examples (Cont'd from Page 21)

$$\frac{A + B + C}{.40 \text{ Profit/Unit}} = \frac{\$50,000}{.40 \text{ Profit/Unit}} = 125,000 \text{ Unit Sales Required} \times \$1.20 \text{ SP} = \$150,000 \text{ Sales Required for Break-Even} \quad (1)$$

$$\text{Sales Required } \$150,000 \times \text{PM\% on SP } 33 \frac{1}{3}\% = \text{Profit } \$50,000$$

$$\text{Sales } \$150,000 - \text{Profit } \$50,000 = \text{Cost } \$100,000 \times \text{Shrinkage Rate } 10\% = \text{Shrinkage } \$10,000 \times \text{BEF } 3.0 = \text{Additional Sales Required for BE } \$30,000 \quad (2)$$

$$\begin{array}{l} \text{P/I loan for mould } \$ 5106 \\ \text{P/I loan for W/C } \$ 12750 \\ \hline \text{P/I loan total } \$ 17856 \\ \hline \end{array} \div .40 \text{ P/U} = \text{Unit Sales Req'd } 44,640 \times \$1.20 \text{ SP} = \text{Additional Sales Req'd for B/E } \$53,568 \quad (3)$$

$$\text{Sales Required } \$53,568 \times \text{PM\% on SP } 33 \frac{1}{3}\% = \text{Profit } \$17,856$$

$$\text{Sales } \$53,568 - \text{Profit } \$17,856 = \text{Cost } \$35,712 \times \text{Shrinkage Rate } 10\% = \text{Shrinkage } \$3,571.20 \times \text{BEF } 3.0 = \text{Additional Sales Required for BE } \$10,713.60 \quad (4)$$

Total Sales Required: \$244,281.60

<u>PROOF:</u>	<u>EXPENSES</u>	<u>SHRINKAGE</u>	<u>BEF</u>	<u>SALES REQUIRED FOR BREAK-EVEN</u>
(1)	\$50,000.00		x 3.0	\$150,000.00
(2)		\$10,000.00	x 3.0	30,000.00
(3)	17,856.00		x 3.0	53,568.00
(4)		3,571.20	x 3.0	10,713.60
	<u>(\$67,856.00)</u>	<u>+\$13,571.20)</u>	x <u>3.0</u>	<u>\$244,281.60</u>

Summary of Pages 20, 21 and 22 (Cont'd from Page 22)

A + B + C	\$50000				
P/I for mould	\$ 5106	unit sales		Sales	
P/I for W/C	\$12750	req for B/E	SP/unit	req for B/E	
	<u>\$67856</u>	= 169640	X \$1.20	= <u>\$203568</u>	= 3.0 BEF or \$3.00
	.40 p/u			\$67856	additional sales req for ea
					additional dollar of expense

Sales req for B/E		PM% on SP		Profit (P)
\$203568	x	33 1/3%	=	\$67856

Sales		(P)		Cost (C)
\$203568	-	\$67856	=	\$135712

(C)	Shrinkage rate		Shrinkage		BEF	
\$135712	x 10%	=	\$13571.20	X	3.0	= \$40713.60 additional sales req for B/E
						<u>\$203568.00</u> Sales Req
						Total sales req for B/E \$244281.60

**Determining Principal/Interest Payments for Working Capital Loan and
Amount of Additional Sales Required for Break-Even**

Annual Sales Req For B/E <u>\$233,568</u> 12 months	=	Projected Monthly Sales \$19,464/month	X	Est. Months Working Capital 4 months	=	Loan Amount for W/C \$77,856
--	---	--	---	--	---	------------------------------------

Sales Req. BE \$233,568	-	Preliminary Sales BE \$150,000	=	Additional Sales Req. \$83,568
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Additional Sales Req. Preliminary Sales B/E	<u>\$83,568</u> \$150,000	=	Additional Req. loan percentile 55.712%	X	Original loan \$50,000	=	Additional loan Req. \$27,856
--	------------------------------	---	---	---	------------------------------	---	-------------------------------------

Additional Loan Req. \$27,856	+	Original Loan \$50,000	=	Total Loan Req. \$77,856
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(PrI) Original Loan \$12,750	X	Additional loan percentile 55.712%	=	Additional (PrI) \$7,104	X	BEF 3.0	=	<u>\$21,310</u> 250 days	=	Additional Sales Req. B/E \$85.24/day
------------------------------------	---	--	---	--------------------------------	---	------------	---	-----------------------------	---	---

Sales \$233,568 X 33 1/3 PM% = \$77,856 Profit

Sales \$233,568 - Profit \$77,856 = Cost \$155,712

Shrinkage \$10,000 / Cost \$155,712 = 6.42% shrinkage rate on cost

Shrinkage \$10,000 / Annual Sales Req. for B/E \$233,568 = 4.28 % Shrinkage Rate on Sales

1. Annual Sales Req. for BE/12 months=Projected Monthly Sales X Est. Months of W/C=W/C Loan Amt

2. Annual (PrI) for W/C Loan X BEF = Additional Sales Req. for BE

Different Products or Services Sold in the Same Business

Different products or services sold in the same business with different profit margins require a separate individual break even analysis to determine total sales revenue required for break even.

Basis \$1.00 Cost/Unit in each Case

40% PM%	-	.40 P/U	-	\$1.40 SP
50% PM%	-	.50 P/U	-	\$1.50 SP
60% PM%	-	.60 P/U	-	\$1.60 SP

$$\frac{A+B+C}{.40 \text{ P/U}} = \text{Unit Sales Req. } 194,640/\text{Units} \quad \times \quad 1.40 \text{ SP} = \frac{\text{Sales Req. for BE } \$272,496}{3} = \$90,832 \quad \text{1/3 of Total Sales}$$

PM% on Cost	Actual Sales Req.	1/3 of Sales
40%	\$272,496	\$90,832
*50%	*\$233,568	\$77,856
<u>60%</u>	<u>\$207,616</u>	<u>\$69,205</u>
**50% Average PM% on Cost		**\$237,893 Total Sales Req. for BE

In summary, apply the following for your break-even:

1. Lowest PM%
2. Lowest SPF

Resulting in the:

3. Highest BEF
4. Highest unit sales required for break-even

Costing-Pricing Worksheet for Manufacturing

Cost Worksheet

Dated

Model # or description

Material

Hourly cost of labor including
Add-ons per/minute

1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. Carton _____ 8. Freight in _____	description of assembly or operation _____ minutes _____ min _____ min _____ min _____ min _____ min assembly of ctn, pkg, sealing _____ min total minutes _____ min	_____ _____ _____ _____ _____ _____ _____ _____
Total _____	total minutes x cost/min _____	

Cost x PM% = P

C + P = SP

$$\frac{P}{C} = \text{PM\% on cost}$$

$$\frac{P}{SP} = \text{PM\% on SP}$$

$$\frac{SP}{C} = \text{SP Factor}$$

Proof - C x SP Factor = SP

- 1. Material _____
- 2. Labor _____
- 3. Total cost of material/labor _____
- 4. Total cost of material/labor
x shrinkage rate _____
- 5. Suggested SP x Commission Rate _____
- 6. Total Cost lines (3 - 4 - 5) _____
- 7. Total Cost x PM % = P _____
- 8. Cost + Profit = SP _____

Break-Even

$$\frac{A + B + C + D}{\text{Profit/Unit}} = \text{Sales Units required for B/E} \quad X \quad \text{SP/Unit} = \text{Total Sales Revenue req. for B/E}$$

_____ = _____ X _____ = _____

$$\frac{\text{Total Sales Revenue Req for B/E}}{\text{Expenses A + B + C + D}} = \text{BEF Break/Even Factor}$$

Cost-Pricing Worksheet for Retail/Wholesale

Cost Worksheet Dated Model or Style #

1. Product _____

2. Freight in _____

3. Total Cost Lines 1 & 2 _____

4. Total Cost x PM% = P _____

5. C + P = SP _____

Cost x PM% = P

C + P = SP

$\frac{P}{C} = \text{PM\% on Cost}$

$\frac{P}{SP} = \text{PM\% on SP}$

$\frac{SP}{C} = \text{SP Factor}$

Proof: C x SP Factor = SP

Break-Even

$\frac{A + B + C + D}{\text{Profit/Unit}} = \text{Sales Units required for B/E} \times \text{SP/Unit} = \text{Total Sales Revenue req. for B/E}$

_____ = _____ X _____ = _____

$\frac{\text{Total Sales Revenue Req for B/E}}{A + B + C + D \text{ Expenses}} = \text{BEF Break/Even Factor}$

- Note: 1. Include retail sales clerk payroll with (A+B+C) expenses.
 2. Include warehouse labor with (A+B+C) expenses.
 3. Add shrinkage to (A+B+C) expenses or include with Costing/pricing

Cost-Pricing Worksheet for A Service

Cost worksheet	x	Dated	=	Job Type
1. Hourly cost including add-ons		PM%		P/Unit hr

2. C	+	P	=	SP/Unit hour

3. Hours of Service _____

4. Hours of Travel _____

5. Total Lines 3-4 _____

6. Total Hours	x	SP/Unit hour	=	SP

Cost x PM% = P

C + P = SP

$\frac{P}{C} = \text{PM\% on Cost}$

$\frac{P}{SP} = \text{PM\% on SP}$

$\frac{SP}{C} = \text{SP Factor}$

Proof: C x SP Factor = SP

Note: 1. Costing with employee labor start with step 1-6
 2. Self employed
 cost/hr = profit/hr = selling price/hr

Break-Even

$\frac{A + B + C + D}{\text{Profit/Unit}} = \text{Sales Units required for B/E} \quad X \quad \text{SP/Unit} = \text{Total Sales Revenue req. for B/E}$

_____ = _____ X _____ = _____

$\frac{\text{Total Sales Revenue Req for B/E}}{A + B + C + D} = \text{BEF Break/Even Factor or additional sales required for each additional dollar of expense}$

Service Business

Self Employed

Selling Price	\$150/hr	P \$150 / C \$150	=	100% Profit on Cost
Cost of Services	\$150/hr	P \$150 / SP \$150	=	100% Profit on SP
Profit	\$150/hr	SP \$150 / C \$150	=	1.00 SPF

A+B+C	Sales Units Req.		SP/Unit	Sales Rev. Req. for BE		
<u>\$105,000</u>	= 700 hrs	X	\$150	=	<u>\$105,000</u>	= 1.0 BEF
\$150					\$105,000	
Profit/hr					A+B+C	

Hrs of shrinkage	Hrly Cost	Cost of Shrinkage		BEF		
3 hrs	X \$150	= \$450	X	1.0	=	\$450 Additional Sales Req. BE

With Employees

Given:	SP/hr \$150	P\$50 / C \$100	=	50% Profit on Cost
	Labor cost/hr (\$100)			
	Profit/hr \$50			

A+B+C	Unit Sales Req.		SP/hr	Sales Req. for BE		
<u>\$105,000</u>	= 2100/hrs	X	\$150	=	<u>\$315,000</u>	= 3.0 BEF
\$50					\$105,000	
Profit/hr					A+B+C	

Proof:	A+B+C		BEF	Sales Req. for BE		
	\$105,000	X	3.0	=	\$315,000	

Hrs of shrinkage	Hrly Cost	Cost of Shrinkage		BEF		
3 hrs	X \$100/hr	= \$300	X	3.0	=	\$900 Additional Sales Req. BE

Proof:	A+B+C + shrinkage		Units hrs Req. for BE	SP/hr	Sales Revenue Req. for BE	
	<u>\$105,000 + \$300</u>	=	2,106 hrs	X \$150	=	\$315,900
	\$50/hr P/U					

Note: Hourly labor cost includes add-ons

Establishing Selling Price for Manufacturing

$$1. \quad \begin{array}{ccccccc} [\text{Cost of Material} & + & \text{Cost of Labor}] & \times & \text{Rate of Profit Margin on Total Cost} & = & \text{Profit} \\ \$1.00 & & \$1.00 & & 50\% & & \$1.00 \end{array}$$

$$2. \quad \begin{array}{ccccccc} [\text{Cost of Material} & + & \text{Cost of Labor} & + & \text{Profit}] & \times & \text{Commission Rate} & = & \text{Preliminary Sales Price Comm.} \\ \$1.00 & & \$1.00 & & \$1.00 & & 10\% & & .30 \end{array}$$

$$3. \quad \begin{array}{ccccccc} \text{Cost of Material} & + & \text{Cost of Labor} & + & \text{Profit} & + & \text{Commission} & = & \text{Preliminary Selling Price} \\ \$1.00 & & \$1.00 & & \$1.00 & & .30 & & \$3.30 \end{array}$$

$$4. \quad \begin{array}{ccccccc} & & \text{Profit} & & & & & & \\ & & \$1.00 & & & & & = & \text{Preliminary Profit Margin \% on Cost} \\ \hline & \text{Cost of Materials} & + & \text{Cost of Labor} & + & \text{Commission} & & & 43.5\% \\ \$1.00 & & & \$1.00 & & & .30 & & \end{array}$$

$$5. \quad \begin{array}{ccccccc} \text{Actual Selling Price} & \times & \text{Commission Rate} & = & \text{Actual Commission} \\ \$3.48 & & 10\% & & .35 \end{array}$$

$$6. \quad \begin{array}{ccccccc} \text{Cost of Materials} & + & \text{Cost of Labor} & + & \text{Actual Profit} & + & \text{Actual Commission} & = & \text{Actual Selling Price} \\ \$1.00 & & \$1.00 & & ? & & .35 & & \$3.48 \end{array}$$

$$7. \quad \begin{array}{ccccccc} \text{Actual Selling Price} & - & [\text{Cost of Materials} & + & \text{Cost of Labor} & + & \text{Actual Commission}] & = & \text{Actual Profit} \\ \$3.48 & & \$1.00 & & \$1.00 & & .35 & & \$1.13 \end{array}$$

$$8. \quad \begin{array}{ccccccc} & & \text{Actual Profit} & & & & & & \\ & & \$1.13 & & & & & = & \text{Actual Profit Margin \% on Cost} \\ \hline & \text{Cost of Materials} & + & \text{Cost of Labor} & + & \text{Actual Comm.} & & & 48\% \\ \$1.00 & & & \$1.00 & & & .35 & & \end{array}$$

NOTE : Always figure sales cost on selling price.

$$\text{Selling Price Factor} \quad \frac{SP}{C} \quad \frac{\$3.48}{\$2.35} \quad = \quad 1.48 \text{ (SPF) Selling Price Factor}$$

Establishing Selling Price for Retail

$$1. \begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} \times \begin{array}{r} \text{Rate of Profit Margin \% on Cost} \\ 50\% \end{array} = \begin{array}{r} \text{Profit} \\ \$1.00 \end{array}$$

$$2. \begin{array}{r} [\text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Profit} \\ \$1.00 \end{array}] \times \begin{array}{r} \text{Sales Cost Rate \%} \\ 10\% \end{array} = \begin{array}{r} \text{Sales Cost on Prelim. Sales Price} \\ .30 \end{array}$$

$$3. \begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Profit} \\ \$1.00 \end{array} + \begin{array}{r} \text{Sales Cost} \\ .30 \end{array} = \begin{array}{r} \text{Preliminary Selling Price} \\ \$3.30 \end{array}$$

$$4. \frac{\begin{array}{r} \text{Profit} \\ \$1.00 \end{array}}{\begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Sales Cost} \\ .30 \end{array}} = \begin{array}{r} \text{Profit Margin \% on Preliminary Cost} \\ 43.5\% \end{array}$$

$$5. \begin{array}{r} \text{Actual Selling Price} \\ \$3.48 \end{array} \times \begin{array}{r} \text{Sales Cost Rate \%} \\ 10\% \end{array} = \begin{array}{r} \text{Actual Sales Cost} \\ .35 \end{array}$$

$$6. \begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Actual Sales Cost} \\ .35 \end{array} + \begin{array}{r} \text{Actual Profit} \\ ? \end{array} = \begin{array}{r} \text{Actual Selling Price} \\ \$3.48 \end{array}$$

$$7. \begin{array}{r} \text{Actual Selling Price} \\ \$3.48 \end{array} - [\begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Actual Sales Cost} \\ .35 \end{array}] = \begin{array}{r} \text{Actual Profit} \\ \$1.13 \end{array}$$

$$8. \frac{\begin{array}{r} \text{Actual Profit} \\ \$1.13 \end{array}}{\begin{array}{r} \text{Cost of Product} \\ \$2.00 \end{array} + \begin{array}{r} \text{Actual Cost of Sales} \\ .35 \end{array}} = \begin{array}{r} \text{Actual Profit Margin \% on Cost} \\ 48\% \end{array}$$

NOTE: Always figure sales cost on selling price.

$$\text{Selling Price Factor } \frac{\text{SP } \$3.48}{\text{C } \$2.35} = 1.48 \text{ (SPF) Selling Price Factor}$$

Establishing Selling Price for Services

Note: Add-ons included with cost of service labor

$$1. \quad \begin{array}{r} \text{Cost of Service} \\ \$25.00 / \text{hour} \end{array} \times \begin{array}{r} \text{Profit Margin on Cost} \\ 50\% \end{array} = \begin{array}{r} \text{Profit} \\ \$12.50 \end{array}$$

$$2. \quad \begin{array}{r} [\text{Cost of Service} + \text{Profit}] \\ \text{Price } \$25.00 \quad \$12.50 \end{array} \times \begin{array}{r} \text{Sales Cost Rate} \\ 10\% \end{array} = \begin{array}{r} \text{Sales Cost on Preliminary Sales} \\ \$3.75 \end{array}$$

$$3. \quad \begin{array}{r} \text{Cost of Service} \\ \$25.00 \end{array} + \begin{array}{r} \text{Profit} \\ \$12.50 \end{array} + \begin{array}{r} \text{Sales Cost} \\ \$3.75 \end{array} = \begin{array}{r} \text{Preliminary Selling Price} \\ \$41.25 / \text{hour} \end{array}$$

$$4. \quad \frac{\begin{array}{r} \text{Profit} \\ \$12.50 \end{array}}{\begin{array}{r} \text{Cost of Service} + \text{Sales Cost} \\ \$25.00 / \text{hour} \quad \$3.75 \end{array}} = \frac{\$12.50}{\$28.75} = \begin{array}{r} \text{Profit Margin \% on Total Cost} \\ 43.5\% \end{array}$$

$$5. \quad \begin{array}{r} \text{Actual Selling Price} \\ \$45.00 / \text{hour} \end{array} \times \begin{array}{r} \text{Sales Cost Rate} \\ 10\% \end{array} = \begin{array}{r} \text{Actual Sales Cost} \\ \$4.50 \end{array}$$

$$6. \quad \begin{array}{r} \text{Cost of Service} \\ \$25.00 / \text{hour} \end{array} + \begin{array}{r} \text{Actual Sales Cost} \\ \$4.50 \end{array} + \begin{array}{r} \text{Actual Profit} \\ ? \end{array} = \begin{array}{r} \text{Actual Selling Price} \\ \$45.00 \end{array}$$

$$7. \quad \begin{array}{r} \text{Actual Selling Price} \\ \$45.00 \end{array} - \begin{array}{r} [\text{Cost of Service} + \text{Actual Sales Cost}] \\ \$25.00 \quad \$4.50 \end{array} = \begin{array}{r} \text{Actual Profit} \\ \$15.50 \end{array}$$

$$8. \quad \frac{\begin{array}{r} \text{Actual Profit} \\ \$15.50 \end{array}}{\begin{array}{r} \text{Cost of Service} + \text{Actual Cost of Sales} \\ \$25.00 \quad \$4.50 \end{array}} = \begin{array}{r} \text{Actual Profit Margin on Total Cost} \\ 52.54\% \end{array}$$

Note 1: Always figure sales cost on selling price.

Note 2: See pages 36-37 for progression to Break-even and Start-up Costs.

Note 3: $\frac{SP}{C} = 1.5254 \text{ SPF}$
 $\frac{\$45.00}{\$29.50} = 1.5254 \text{ SPF}$

Note 4: $PM\% \text{ on Cost} + 1.0 = SPF$ $.5254 + 1.0 = 1.5254 \text{ SPF}$

Use of Factors in Establishing Selling Price for All Industries

Example for Services:

(note: Sales cost included in factor)

1.
$$\frac{\text{Service Charge per Hour}}{\text{Cost per Hour of Service}} = \text{Factor}$$

$$\frac{\$45.00}{\$25.00} = 1.8$$
2.
$$\text{Service Charge per Hour} \times \text{Cost of Sales \%} = \text{Sales Cost}$$

$$\$45.00 \times 10\% = \$4.50$$
3.
$$\text{Service Charge per Hour} - [\text{Cost per Hour of Service} + \text{Sales Cost}] = \text{Profit}$$

$$\$45.00 - [\$25.00 + \$4.50] = \$15.50$$
4.
$$\frac{\text{Profit}}{\text{Cost per Hour of Service} + \text{Sales Cost}} = \text{Profit Margin on \% Cost}$$

$$\frac{\$15.50}{\$25.00 + \$4.50} = 52.5\%$$

See page 34 for adjustments applicable to your business.

Example for Manufacturing:

1.
$$[\text{Cost of Material} + \text{Cost of Labor}] \times \text{Factor} = \text{Selling Price}$$

$$[\$1.00 + \$1.00] \times 1.7 = \$3.40$$
2.
$$\text{Selling Price} \times \text{Commission Rate} = \text{Commission}$$

$$\$3.40 \times 8\% = .27$$
3.
$$\text{Selling Price} - [\text{Cost of Material} + \text{Cost of Labor} + \text{Commission}] = \text{Profit}$$

$$\$3.40 - [\$1.00 + \$1.00 + .27] = \$1.13$$
4.
$$\frac{\text{Profit}}{\text{Cost of Material} + \text{Cost of Labor} + \text{Commission}} = \text{Profit Margin \% on Cost}$$

$$\frac{\$1.13}{\$1.00 + \$1.00 + .27} = 49.8\%$$

See page 34 for adjustments applicable to your business.

Use of Factors in Establishing Selling Price for All Industries (Cont'd.)

Example for Retail:

1.	Cost of Product \$2.00	x	Factor 1.7	=	Selling Price \$3.40	
2.	Selling Price \$3.40	x	Cost of Sales % 8%	=	Sales Cost .27	
3.	Selling Price \$3.40	-	[Cost of Product \$2.00	+ Sales Cost]	=	Profit \$1.13
4.			Profit \$1.13			= Profit Margin % on Cost 49.8%
	<u>Cost of Product</u> \$2.00	+	<u>Sales Cost</u> .27			

See below for adjustments applicable to your business.

Factor can be raised or lowered based on any of the following: (Example 1.7 to 1.8, or 1.7 to 1.6)

- A. 1) Cost of Material 2) Cost of Labor 3) Cost of Product 4) Cost per Hour of Service
- B. 1) Commission Rate 2) Cost of Advertising
- C. 1) Selling Price 2) Service Charge per Hour
- D. 1) Profit Margin Percentile (%) on Cost

**Determining the Selling Price Factor, Break-Even Factor and
Determining Sales Revenue Required for
Each Additional Dollar of Operating Expenses**

The Service Industry example is used for convenience only, although the method applies to any industry.

Begin by reviewing Service Industry example, page 31 dealing with Costing-Pricing and page 32 dealing with Break-Even.

Using the numbers from the examples proceed to determine the following:

1. Selling Price Factor

$$\frac{\text{Selling Price}}{\text{Cost/Hour of Service Labor} + \text{Cost of Sales}} = \text{Selling Price Factor}$$

$$\frac{\$45.00}{\$25.00 + \$4.50} = 1.5254$$

$$(\text{Cost/hour Service Labor} + \text{Cost of Sales}) \times \text{Selling Price Factor} = \text{Selling Price}$$

$$(\$25.00 + \$4.50) \times 1.5254 = \$45.00$$

2. Break-Even Factor

$$\frac{\text{Sales Revenue required for Break-Even}}{\text{administration/compensation} + \text{fixed expenses} + \text{variable expenses}} = \text{Break-Even Factor}$$

$$\frac{\$145,170}{(A) + (B) + (C)} = 2.9034$$

$$\frac{\$145,170}{\$50,000} = 2.9034$$

$$(A + B + C) \times \text{Break-Even Factor} = \text{Sales Revenue Required for Break-Even}$$

$$\$50,000 \times 2.9034 = \$145,170$$

3. Sales Revenue required for each additional dollar of operating expenses

$$\frac{\text{Sales Revenue required for Break-Even}}{(A + B + C) \text{ Operating Expenses}} = \$2.91$$

$$\frac{\$145,170}{\$50,000} = \$2.91$$

Determining Cash Required for Start-Up

Example for Service Industry: (Cont'd. from page 32)

(A) Fixed Expenses + (B) Flexible Expenses + (C) Admin Expenses including Compensation

$$\frac{(A + B + C)}{\text{Profit/Unit}} = \text{Unit Sales Required}$$

$$\frac{\$50,000}{\$15.50/\text{Hour}} = 3226 \text{ Hours}$$

$$\text{Unit Sales Required} \times \text{Selling Price/Unit} = \text{Sales Revenue Required for Break-even}$$

$$3226 \text{ Hours} \times \$45/\text{Hour} = \$145,170$$

$$\frac{\text{Projected Annual Sales Revenue Required for Break-even}}{\text{Annual Number of Working Days}} = \text{Daily Revenue Required for Break-Even per Working Day}$$

$$\frac{\$145,170}{250 \text{ working days in 12 mo.}} = \$581 \text{ per working day}$$

Annual Sales Revenue Required for Break-even = \$145,170

Late Payment Reserve	1 month	2 months	3 months
	\$12,098	\$24,195	\$36,293

(key money) Startup Capital may include:

- a) 1 month's rent and security
- b) minimum insurance premium
- c) energy deposit plus 1 month's service cost
- d) telephone deposit plus 1 month's service cost
- e) office equipment
- f) office supplies

} Estimate \$15,000

3 month's late payment reserve \$36,293
\$51,293

Note 1: loan schedule 5 years D - monthly payment \$1,091
 principal \$51,293 (A + B + C) + D annual total = \$63,095
 interest rate 10% \$50,000 \$13,095

$$\frac{A + B + C + D}{\text{Profit/Unit}} = \text{Sales Units Required for Break-even} \times \text{Sales Price/Unit HR} = \text{Sales Revenue Required for Break-even}$$

$$\frac{\$63,095}{\$15.50/\text{hr}} = 4071 \text{ hrs} \times \$45.00/\text{Hr} = \frac{\$183,180}{250/\text{days}} = \$733/\text{day}$$

Determining Cash Required for Start-Up (Cont'd.)

Note: Extending credit requires:

1. Additional working capital
2. Problems with credit and collections

Loan for Start Up Costs Principal _____
Loan for Working Capital _____
Total _____

Loans Annualized

Start up principal/interest _____
Working capital principal/interest _____
Total Principal/Interest _____

Add total annual principal/interest to A+B+C+D (expenses) for Break Even calculation

Determining Evaluation for Purchase or Sale of a Business

You are about to purchase a business. Some knowledge, experience and a due diligence effort to verify all facts and figures are prerequisite. Money borrowed from yourself or from a bank must be paid back with interest, subject to the payback terms that meet your criteria of comfort and ability to operate the business profitably. The Service Industry example is only used for convenience, although the method applies to every business.

Step 1. Begin by reviewing Service Industry example, page 31, dealing with costing- pricing and and page 32, the Break-Even.

Step 2. Follow through with applying the Break-Even formula on pages 36-37 by adding (D) payments of \$13,095 per year for the five-year loan of \$51,293 @ 10% interest for key money and working capital to the (A + B + C) which now becomes (A + B + C + D). With compensation of \$35,000 per year and a suggested multiplier of (4x) earnings, the purchase price is \$140,000 and it too will become a loan. Adding (E) payments of \$22,203 per year for the ten-year term loan of \$140,000 @ 10% interest for purchase money to the (A + B + C + D) now becomes (A + B + C + D + E) and increases the sales revenue required for the Break-Even to \$247,680. It now reaches the point when you ask yourself whether the purchase price meets your criteria for being comfortable with the loan payback terms and required sales revenue for Break-Even.

	<u>Unit Sales Required For Break-Even</u>		<u>Selling Price Per Hour</u>	<u>Sales Revenue Required For Break-Even</u>
Example: A+ (B + C) + D + E $\frac{\$35,000 + \$15,000 + \$13,095 + \$22,203}{\$15.50/\text{hour profit per unit}}$	= 5504 hrs.	x	\$45.00/hr.	= \$247,680

Step 2 is repeated, substituting numbers that will enable you to be comfortable with your projections and decide whether to purchase the business.

As the 11th year is reached, the \$191,293 loans are matured, saving \$35,298 per year from principal and interest payments providing:

1. \$51,293 working capital free and clear
2. Choices of either (a) or (b)
 - (a) \$35,000 compensation may be gradually increased to \$70,298
 - (b) \$51,293 working capital may be gradually increased to \$86,591, allowing for increased sales.
3. A Capital gain may be realized if and when the business is sold.

Suggested Selling Price

$$\begin{array}{rcccl} \text{Current 12 month's compensation} & \times & \text{earnings multiplier} & = & \text{Selling Price} \\ \$70,298 & & 4 & = & \$281,192 \end{array}$$

Summary Review

Costing - Pricing formula provides:

1. Profit per unit cost based on given profit margin percentile (%)
2. Selling price per unit

Example:

$$\begin{array}{rcccl} \$1.00 & & 50\% & & \$0.50 \\ \text{Cost of Product per Unit} & \times & \text{Suggested Profit Margin \%} & = & \text{Profit per Unit Cost} \end{array}$$

$$\begin{array}{rcccl} \$1.00 & & \$0.50 & & \$1.50 \\ \text{Cost of Product per Unit} & + & \text{Profit per Unit} & = & \text{Selling Price per Unit} \end{array}$$

$$\begin{array}{rcccl} \$0.50 & & \$1.50 & & 33 \frac{1}{3}\% \\ \text{Profit per Unit Cost} \div \text{Selling Price per Unit} & = & \text{Profit Margin Percentile (\%)} & \text{per Unit Selling Price} \end{array}$$

Note: 50% profit per unit cost is equivalent to 33 1/3% profit per unit selling price.

Break-Even formula provides:

1. Unit Sales required for Break-Even
2. Sales revenue required for Break-Even

$$\frac{\text{Total administrative expenses including compensation + fixed + variable expenses}}{\text{Profit per unit in dollars or cents}} = \frac{(A + B + C)}{\text{Unit Sales required for Break-Even}}$$

$$\text{Unit Sales required for Break-Even} \times \text{Selling price per unit} = \text{Sales revenue required for Break-Even}$$

Determining cash required for start-up provides:

The projected Break-Even point when (D) (Key money plus working capital) payments for payback of principal and interest for money borrowed from oneself or bank is added to the (A + B + C) in the Break-Even formula which now becomes (A+B+C+D).

Determining purchase price for business provides:

The projected Break-Even point when payments for payback of principal and interest for (D) Key money plus working capital and (E) Purchase money borrowed from oneself or the bank are added to the (A+B+C) in the Break-Even formula which now becomes (A+B+C+D+E).

Primer for Business Success

By Arnold Jaffa

1. Motivation is the key to success.
2. Sales are the key to any business.
3. A salesperson is only as good as the product.
4. Quality sells 12 months a year.
5. Courteous manners, promptness, a quality product and service are all important.
6. It takes a thousand years to make a customer, but just one second to lose one.
7. Your homework includes knowing your product, customer, merchandising, costing, marketing, credit checks, and making an appointment.
8. Test market your service or product to see whether you have a marketable product or service with an acceptable selling price.
9. Unless you have sales ability, ideas, creativity, and inventiveness will lead you nowhere.
10. If you have the ability to promote your idea, you will then create the need for your product.
11. A business plan is the fundamental tool in raising and utilizing capital, but must be accompanied by the need for a product that is better than and different from what is currently being offered in the marketplace.
12. Buy little and pay often.
13. Walk before you run.
14. Experience is the best teacher.
15. Different fingerprints, different personalities.
16. Good work ethics include good work habits, dedication and discipline.
17. If it can be done today, don't leave it for tomorrow.
18. Along the way, continue to set new goals.
19. Before accepting an obligation, know your limitations and understand what has to be done.
20. Collections are a key priority and sometimes must be given precedence over seeking new business.
21. Verify all facts given to you before accepting them as truth.
22. A customer becomes one after the bill is paid.
23. The only boss is the customer.
24. When you run out of money, no more mistakes.
25. Hard work and long hours will not hurt you, but aggravation will.
26. Knowing each day that you have done your best will help you achieve satisfaction and sleep better at night.
27. Business and work can be fun; it all depends on how you approach it.
28. Think of your business as a game with rules and penalties.
29. Good record keeping provides a progress report of your business.
30. A credible individual only has one's word, signature and handshake.
31. Money is round, it comes and goes, but you can't buy credibility. You have to earn it.
32. Integrity and honesty are chief ingredients in business. They are keys to success.
33. It is not how much business you do, but how much profit you keep.
34. Based on past performance, a successful business person can, at the beginning of each year, predict the "x" amount of business that will be realized.
35. Start each day when putting the key in the door as if you have nothing to eat and are hungry.
36. Never take your business for granted, otherwise it may be the beginning of the end.
37. When in doubt, ask first.
38. Success is based on an ongoing learning process.
39. Assumptions for starting a business: good health and ample funds for a good head start.
40. Money is hard to make, easy to lose.
41. Think of each penny saved in terms of how much you would need to invest for a whole year.
42. Are you a "coulda, woulda, shoulda" person?
43. Do you want to be in the 1% or 99%?

44. There are two kinds of people in this world: those that turn gold into nothing, and those that turn nothing into gold.
45. Every successful business requires a continuous flow of happy, satisfied customers.
46. Treat each penny like it is your last.
47. Think like a banker.
48. Each second that passes without being productive can never be replaced or made up; it is lost forever.
49. Without sales you don't have a business.
50. Innovation and creativity is the result of the force of necessity.
51. Run your business for profit, not a benefit show.
52. Everyday you put the key in the door, you are starting in business all over again.
53. Having a passion for what you are doing is a giant plus for whatever you undertake.
54. Build sound and friendly relationships.
55. Say what you mean and mean what you say.
56. Be 100% honest with yourself so that you can be 100% honest with others.
57. If you think you can fool anyone, you are fooling yourself.
58. Communicate promptly.
59. Promise later delivery and deliver on time or earlier.
60. Never quote a price and go back to say you misquoted.
61. When in doubt, check it out.
62. Be motivated at all times.
63. Be able to identify a problem and focus on correcting it as soon as possible.
64. Be a decision maker.
65. Be a self starter.
66. Be a people person.
67. Be creative.
68. Be assertive.
69. Be diplomatic.
70. Prioritize the daily "to do" list.
71. Prepare your "to do" list at the end of each day for the following day.
72. Do not procrastinate.
73. You are selling yourself 100% of the time.
74. Your customer or clients are buying you, your product or service follows.
75. Have no doubt about the next step you are going to take.
76. The learning you acquire by struggling through the numbers helps you to understand your business.
77. If you can explain the numbers you will gain credibility when presenting your plan to bankers or investors.
78. The two things that are the principle cause of failure in business are:
 - a. Lack of a business plan.
 - b. Under capitalization (lack of start up money)
79. In God we trust, all others pay cash.
80. God helps those who help themselves.
81. You have to make it happen; nothing happens by itself.
82. It is not how many customers or clients you have today, but how many you keep for tomorrow.
83. Business principles have not changed over time. What has changed is the acceleration of information.
84. Prepare your business plan based on the marketing feedback and break-even analysis projections for required sales revenue and operating expense limit.
85. Plan to have enough working capital and startup funds to help you keep going until you reach break-even or better within a reasonable period of time (6 months to a year, etc.).
86. Now that you have learned about the tools of business, you can readdress your weakness. Do this before expending effort, time and money. If you think you are ready, give it a try.
87. If someone fails, we all lose; if someone succeeds, we all benefit in this nation.
88. The reward is knowing that everyone in our country benefits when you are successful.

Internal Revenue Service Publications

Telephone: 1-800-829-1040

Pub.	Title:
334	Tax Guide for Small Business
509	Tax Calendar
533	Self Employment Tax
534	Depreciation
535	Business Expenses
536	Net Operating Loss
538	Accounting Period Methods
541	Tax Information on Partnerships
542	Tax Information on Corporations
550	Investment Income & Expenses
552	Record Keeping for Individuals
583	Taxpayer Starting Business
587	Business Use of Your House
910	Guide to Free Tax Services
911	Tax Information for Direct Selling
917	Business Use of a Car
937	Business Reporting Employment Taxes

Summary

Before borrowing money from yourself or an outside bank:

- Step 1 Ask yourself whether you are truly motivated to start up a business. Write down the reasons for doing so. Is your product or service unique, different and better than what is in the market place?

- Step 2 Are you certain that all the facts and figures to be used for costing/pricing and break-even analysis for your service or product are accurate?

- Step 3 Did you test market your service or product to see whether you have a marketable product or service with an acceptable selling price? What is the potential-competition-life expectancy of the intended business?

- Step 4 Did you prepare your business plan based on the marketing feedback and break-even analysis projections for required sales revenue and operating expenses?

- Step 5 Plan to have enough working capital and start up funds to keep you going until you reach break-even or better within a reasonable period of time (6 months to 1 year, etc.)

- Step 6 Read the one-liners. It is based on my own life's business experience.

Solutions for Test on Page 17

$$\begin{aligned}
 C \times \text{PM\%} &= P \\
 \$1.00 \times 40\% &= .40 \\
 C + P &= SP \\
 \$1.00 + .40 &= \$1.40
 \end{aligned}$$

$$\frac{P}{SP} = \frac{.40}{\$1.40} = 28.57\% \text{ PM\% on SP}$$

$$\frac{SP}{C} = \frac{\$1.40}{1.00} = 1.4 \text{ SP factor}$$

$$\begin{aligned}
 \frac{A + (B + C)}{\text{Profit/unit}} &= \frac{\$25000 + \$5000}{.40} = 75000/\text{units} & \times & \text{SP} &= \text{Sales req for B/E} \\
 & & & \times & \$1.40 = \frac{\$105000}{250 \text{ wkdays}} = \$420/\text{day}
 \end{aligned}$$

$$\begin{aligned}
 \frac{\text{Sales revenue req for B/E}}{A + B + C} &= \frac{\$105000}{\$30000} \\
 &= \text{Additional Sales revenue req for each} \\
 &\quad \text{additional dollar of expense} \\
 &\quad \$3.50 \\
 &\quad \text{or B/E factor 3.5}
 \end{aligned}$$

$$\text{Proof} \quad A + B + C \times \text{B/E factor} = \text{Sales req for B/E} \\
 \$30000 \quad \quad \quad 3.5 \quad \quad \quad \$105000$$

Additional methods to determine SPF

$$\text{Method 2} \quad \frac{P}{C} + 1.0 = \text{SPF} \quad \quad \quad \frac{.40}{\$1.00} + 1.0 = 1.4 \text{ SPF}$$

$$\begin{aligned}
 \text{Method 3. PM\% on cost} + 100\% &= \text{SPF} \\
 40\% + 100\% &= 140\% \\
 .4 + 1.0 &= 1.4 \text{ SPF}
 \end{aligned}$$

Method to determine Break Even Factor

$$\begin{aligned}
 \frac{SP}{P} &= \frac{\$1.40}{\$.40} = 3.5 \text{ B/E factor or } \$3.50 \text{ additional sales required for each additional} \\
 &\quad \text{dollar expense.}
 \end{aligned}$$