# CONSUMER MATHEMATICS 8
# BUSINESS SERVICES

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# III. BUSINESS OPERATIONS

## SECTION OBJECTIVES

**Read these objectives.** When you have completed this section, you will be able:

5. To list pricing considerations.
6. To define and determine fixed costs.
7. To define and determine variable costs.
8. To compute profit from business operations.
9. To calculate terms of credit.
10. To define and figure markups, markdowns, and discounts.

The profit motive underlies our free enterprise system. Even though starting a small business involves great risks, the proprietorship, owned by one person, is by far the most popular form of legal business organization. In 1972 over ten million proprietorships were registered in the United States. These proprietorships made up 78% of all business organizations. The failure rate for businesses of all types averages about four-tenths of 1 percent, which does not sound very high. However, an estimated 75 percent of all business failures happen to firms that owe less than $100,000 at the time of bankruptcy.

These statistics indicate a need to understand financial management, particularly as it relates to revenue and costs and how these factors, in turn, influence the price of goods and services offered by a business firm.

## PRICING CONSIDERATIONS

Pricing decisions are some of the hardest and most complex kinds of decisions a businessman has to make. Not only do prices affect a firm's sales and profits, but also the way the firm sets its prices determines to a great degree its reputation in the marketplace.

The buyer's ability to pay and his willingness to pay establish the demand for products. If a product is urgently needed and is relatively scarce, people will likely pay a high price for the product. However, if the price of a product, such as hamburger is doubled, people will probably switch to a substitute product at a lower price.

With respect to the manufacturer or supplier of a product, we find a reverse relationship. The business will seek the highest price the market will bear. If people will not buy at a set price that the businessman feels he must have to meet his costs and get a reasonable return on his investment, he will probably stop manufacturing or supplying the product and move on to other goods, or get out of the business entirely.

In very broad terms these facts show the law of supply and demand, which operates in a free market economy. Often a compromise is reached where the price at which buyers are willing to pay for an article is the price at which the supplier is willing to sell the article.

Cost is an important element of price. A business firm is hardly likely to reduce its unit price on an item from $2.00 to $1.50, if its cost in producing and marketing the item is $1.75.

A businessman must have a good guideline to follow to determine his price. The most fundamental concept is the difference between *fixed costs* and *variable costs*.

**Costs associated with such things as rent, property taxes, interest on borrowed money, utilities, and so on are called *fixed costs*. The reason they are called fixed costs is because they are owed by the business without respect to production. Fixed costs are not affected by the number of units produced.**

**Costs that are directly affected by the number of units produced, such as direct labor costs, equipment costs, materials for production, storage and transportation costs, and so on, are called *variable costs*.**

Model 1: The Widget Company has fixed costs of $2,500 per week. During the week the company produces 5,000 widgets at a cost of $0.50 per widget. What are the fixed costs, variable costs, and total costs of the Widget Company per week?

T.C. = Total Costs
F.C. = Fixed Costs
V.C. = Variable Costs

T.C. = F.C. + V.C.
T.C. = $2,500 + (5,000)($0.50)
T.C. = $2,500 + $2,500
T.C. = $5,000

Model 2: If the Widget Company expands its production to 7,500 widgets per week, and it determines that its total costs are now $6,000, what is the unit cost per widget produced?

T.C. = F.C. + V.C.
$6,000 = $2,500 + (7,500)(unit cost)
7,500(unit cost) = $3,500

$$\text{unit cost} = \frac{\$3,500}{7,500}$$

unit cost = 46.67¢

The preceding two examples are representative of a basic principle in total costs of production. Normally, the more units produced, the smaller the unit price becomes. In other words, even though variable costs associated with production go up with increased production, the cost per unit goes down because of greater efficiency. Also, since fixed costs remain constant regardless of the units produced, total costs will not increase proportionally as high as the rise in variable costs.

Business profit is determined by subtracting the associated fixed costs and variable costs from the total receipts, or *revenue*, realized from the sale of the product.

The formula showing this relationship is profit = revenue - total costs.

We have already seen that total costs = fixed costs + variable costs.

**Therefore, profit = revenue − (fixed costs + variable costs). Write down these formulas for future use.**

**The revenue is determined by multiplying the number of units sold by the sales price per unit.**

Model: The Widget Company produced 10,000 widgets during the month at a fixed cost of $2,500 and a production cost of 33¢ per unit. The company was able to sell 8,500 of these widgets at $1.50 per unit. What profit did it realize?

Revenue = 8,500($1.50) = $12,750
Variable costs = 10,000($0.33) = $3,300
Profit = Revenue - (Fixed Costs + Variable Costs)
Profit = $12,750 - ($2,500 + 3,300)
Profit = $6,950

Solve the following problems.

3.1 Your company makes and sells sweaters. Fixed costs in any month amount to $8,900. You can produce 5,000 sweaters at a production cost of $5.50 per sweater. What are the total costs for the company during one month's production?

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3.2 **In the preceding problem what is your company's revenue if it sells 4,600 sweaters of its monthly production at $17.75 per sweater? Remember that revenue is income from sales.**

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3.3 Suppose that during the next month your sweater company cuts back on its production, producing only 3,750 sweaters. You find your production costs now amount to $5.95 per sweater. What are the total costs for the company during this particular month?

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3.4 Following the circumstances from the preceding problems, suppose your company sells 3,600 sweaters from this month's production. To stimulate sales, these sweaters were priced at $16.50 each. What revenue does your company receive?

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3.5 Taking the revenue calculated in Problem 3.4 and the total costs for that month (Problem 3.3), what was your company’s net profit for that month?

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Match the correct items.

3.6 ______ scarce products
3.7 ______ 75% of business failures
3.8 ______ proprietorship
3.9 ______ total costs
3.10 ______ revenue
3.11 ______ profit
3.12 ______ variable costs
3.13 ______ fixed costs

a. associated with firms owing less than $100,000
b. fixed costs plus variable costs
c. revenue minus total costs
d. associated with higher demand
e. associated with units produced; an expense
f. not dependent on units produced
g. individually owned
h. associated with units sold

Complete this sentence.

3.14 Normally, the more units produced by a company, the

________________ the unit costs.