Inspiring Greatness

ISD

INDEPENDENCE SCHOOL DISTRICT

Business Virtual Learning

HS/Marketing

April 22, 2020

Lesson Topic - Break Even Point

Objective/Learning Target:

Lesson: April 22

1. Understand what purpose break-even point plays in pricing of products and services
2. Calculate break-even point

Revenue vs. Profit

- **Revenue** is earned income from the regular operations of the business.
- **Expenses** are the cost of running the business.
- **Profit** is revenue above and beyond expenses.
- **Loss** is expenses above and beyond revenue.

Break-even Point

- The **break-even point** (BEP) represents the sales amount—in either ***unit*** (quantity) or ***revenue*** (sales $$) terms—that is required to cover total costs, consisting of both fixed and variable costs to the company.
- The point where Revenue = Expenses
- Total profit at the break-even point is zero.

Types of Expenses

- A **fixed expense** is an expense that will be the same total amount regardless of changes in the amount of sales, production, or some other activity.
  - For example, a retailer's monthly rent expense of $2,000 is a fixed expense because it will be a total of $2,000 whether the monthly sales are $15,000 or $30,000.
- Examples of fixed expense:
  - Rent
  - Salary or wages

Types of Expenses

- **<u>Variable expense</u>** when its total amount changes in proportion to the change in sales, production, or some other activity.

Example of Variable expense:

The credit card processor charges the business a fee of 3% of the amount charged.

- Therefore, in a month when sales are $10,000 the business will have a credit card expense of $300. (10,000 x .03)
- If sales are $30,000 there will be a credit card expense of $900. The total credit card expense varies with sales because the fee has a fixed rate of 3% of sales. (30,000 x .03)

Break-even Point Formulas

Break-Even Point in Units or Quantity= Fixed Costs / (Sales Price Per Unit - Variable Costs)

Example:
If I sell a product for $79.99 that costs me $11.99 per unit to produce and my fixed costs total $27,336, how many units must I sell to break even?

$P = 79.99$

$V = 11.99$ Variable cost is what it cost to product each unit!

$FC = 27336$

$$X = \frac{FC}{(P-V)} = \frac{27336}{(79.99-11.99)} = \frac{27336}{68} = 402$$

SO in this example I must sell 402 units to break even. Anything above the 402 would be profit.

Breakeven Point Formulas

Break-Even Point in $ = Price per unit x BEP units

Break-even sales dollars are the amount of revenue needed to reach the break-even point. Once the break-even sales units figure is calculated, then the break-even sales dollars can be determined.

$79.99 x 402 = $32,155.98

To double check this:
11.99 (cost per unit) x 402 = $4,819.98
added to the total fixted costs of $27,336
equals the $32,155.98

$4,819.98 + 27,336 = $32,155.98

Practice #1

Figure BEP in units and dollars for the following:

A firm expects to sell 60,000 pairs of pants at $12.50 each. The cost of manufacturing and marketing them is $10.00 each. The fixed costs associated with the pants is $15,000.

Calculate the break-even point in units for the pants. _____.

Calculate the BEP in $$: _____

If they sell all 60,000 pairs, what will the profit be? _____.

Practice #2

Figure BEP in units and dollars for the following:

A firm expects to sell 2,000,000 rubber knobs at $.25 each. The cost of manufacturing and marketing them is $.20 each. The fixed costs associated with the pants is $25,000

Calculate the break-even point in units. _____.

Calculate the break-even point in $$ _____

If they sell all the knobs, what will the profit be? _____.

Practice #3

Figure BEP in units and dollars for the following:

XYZ Corporation has calculated that it has fixed costs that consist of its lease, depreciation of its assets, executive salaries, and property taxes. Those fixed costs add up to $60,000. Their product is the widget. Their variable costs associated with producing the widget are raw material, factory labor, and sales commissions. Variable costs have been calculated to be $0.80 per unit. The widget is priced at $2.00 each.

a. What is the break-even point in units? _____

b. What is the break-even point in $$? _____