

Unit 6: The Mathematics of Starting a Business

Goal: To understand the principles and mathematics of starting a business.

Expectations

1. determine if a product or service can be profitable in a community.

Example:

You are interested in opening a plumbing service in Rockville. How would you determine whether the service would be profitable?

2. determine the startup costs to open a business, including inventory, construction, permits, and equipment and how these costs will be financed.

Example:

You are planning on opening a clothing store that sells jeans. You would like to open in a 1000 square-foot space in a local mall. Determine how much it will cost to open this business. Your costs should include equipment, inventory, construction, permits, and any other expenses.

Example:

Research various ways of financing the opening of a business. Determine the costs per month of this financing, including principal and interest.

3. determine fixed and variable expenses of running a business.

Example:

Give examples of fixed and variable expenses of running a business.

Example:

Research to determine the fixed expenses of running a 1000 square-foot business in a local mall, such as rent, utilities, loan repayment, and any other fixed expenses.

Example:

Determine how much it will cost to advertise in the local newspapers, on radio, and on television.

Example:

In your business, your store will be open 80 hours each week. You will need three salespeople in the store at all times, each earning \$9.00 per hour. You will also need a manager in the store at all times, earning \$20.00 per hour. Including the business portion of Social Security and Medicare taxes, as well as unemployment insurance, what will your personnel costs be each week?

4. approximate the revenue that a business will generate.

Example:

You are running a charter boat. You currently charge \$20 per person. At this price, 150 people will ride on your boat. You decide that you would like to bring in more revenue by raising prices. You have surveyed passengers on previous charter trips and determined that for every one dollar the price is increased, three fewer passengers will ride. At what price will the amount of revenue be maximized?

5. understand the laws of supply and demand.

Example:

Explore the relationship between supply and demand.