Chapter Outline
1. Perfect Competition and Demand
2. Profits and Economics Costs
3. Short-run vs. Long-run decisions
4. Production Functions: TP, MP, AP
5. Production Functions with Two Variable Factors of Production

The Behavior of Profit–Maximizing Firms
Perfect Competition – an industry that contains many small firms, producing identical products, and easy entry into the industry.

Homogeneous Product – products that are undistinguishable. Consumers are indifferent between consumption by different manufacturers.

Profits and Economics Costs
Profits – the difference between total revenues and total costs
Total Revenue – the amount received from the sale of the product
Total Cost – the out of pocket expenses and the opportunity cost for each factor in the production of the good.
Normal Rate of Return – the opportunity cost of capital (the return the capital would make in the next best alternative).

\[ \pi = TR - TC \] (including opportunity cost)
Accounting Profits do NOT include the opportunity costs

Short-run vs. Long-run decisions
Short-Run – the period of time in which the firm has a fixed factor of production and the firm may not enter or exit the industry
Long-Run – time period in which all resources are variable. (Entry and exits are possible)

Production Functions: TP, MP, AP
- Occurs only in the short-run
Total Product – shows output as a function of inputs
Marginal Product – the additional output produced by hiring one additional unit of a variable resource
Average Product – the average output produced by each variable resource.
Law of Diminishing Returns – After a certain point, when additional units of a variable resource are hired in the short-run (are added to fixed resources), then the marginal product of the fixed resources declines.

\[ AP_L = \frac{TP}{Q_L} \quad MP_L = \frac{\Delta TP}{\Delta Q_L} \quad TP = \sum MP \]