

### 3.4 Optimization Problems in Economics & Science

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- Profit, cost and revenue are quantities whose rates of change are measured in terms of the number of units produced or sold
- Economics situations usually involve minimizing costs or maximizing profits.

- To maximize revenue, we can use the revenue function

$$\text{revenue} = \text{total revenue from the sale of } x \text{ units} = (\text{Price per unit}) \times x$$

- Practical constraints, as well as mathematical constraints, must always be considered when constructing a model

- Once the constraints on the model have been determined - the domain - apply the extreme value algorithm to the function over the appropriately defined domain to determine the absolute extremes.