

Applications of Cost and Revenue Functions

Learning Objectives

- Compute and relate profit, revenue and cost functions
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Compute and relate profit, revenue and cost functions

1. The cost to produce a new model light bulb is \$2.50 per bulb. The overhead costs before producing any light bulbs is \$5,000. Write an equation for the total cost function in terms the number of bulbs produced.

2. The demand equation for light bulbs is $p = 11.5 - 0.003x$. Use that information to find the revenue function for the light bulbs.

3. Use the information from the previous to problems to find the number of light bulbs that need to be sold to break even

4. Find the Profit equation for the light bulbs and find the number of light bulbs need to be sold in order to achieve maximum profit. How much is the maximum profit at that sales level?

- Profit = Revenue – Cost
- Revenue = Quantity Sold * Price
- Cost = Cost per Unit * Number of Units + Fixed Costs
- Break-even Point: Profit = 0 or Revenue = Cost; if you get a decimal answer, round up!

ANSWER KEY

1. $C(x) = 2.50x + 5000$

2. $R(x) = 11.5x - 0.003x^2$

3. 737

4. $P(x) = -0.003x^2 + 9x - 5000, x = 1500, P(1500) = 1750$