

## Teacher Notes



# Revenue, Costs, and Maximizing Profit

## Activity 3 Assessing Revenue, Costs, and Maximum Profit

### *Activity Overview*

This activity assesses student knowledge and understanding of revenue, cost and profit in the production of goods. The assessment includes two multiple choice questions, matching to a graph, one set of true or false statements, and one extended response question.

### *Directions*

#### *Before the Activity Begins*

Have enough copies of the assessment so that each student has a copy.

Begin class by letting the students review the lesson's vocabulary and their notes. Conduct a quick review of the following terminology and formulas with your students.

- ◆ Total Revenue
- ◆ Marginal Revenue

## Activity at a Glance

- ◆ **Subject:** Social Studies
- ◆ **Subject Area:** Economics
- ◆ **Category:** Microeconomics
- ◆ **Topic:** Prices
- ◆ **Grade Level:** 9 - 12
- ◆ **Prerequisites:** Students should have completed the activities entitled "Exploring Revenue and Cost" and "Investigating Maximizing Profits".
- ◆ **Total Teaching Time:** 30 minutes

## Materials

- ◆ TI-83 Plus or TI-83 Plus Silver Edition
- ◆ CellSheet™ Application
- ◆ Student Assessment Sheet: **Assessing Revenue, Costs, and Maximizing Profits**
- ◆ Teacher Guides: **Answers to the Assessment, Suggested Rubrics for the Extended Response Question**

- ◆ Elasticity of Demand
- ◆ Economies of Scale
- ◆ Law of Diminishing Returns
- ◆ Fixed Costs
- ◆ Variable Costs
- ◆ Average or Unit Cost
- ◆ Marginal Cost
- ◆ Profit

Ask if there are any last-minute questions.

### ***During the Activity***

Once students have begun the assessment, monitor their progress and answer any questions that may arise. Students will need to use their TI-83 Plus devices during the assessment.

### ***After the Activity***

Discuss the assessment and answers. The Answer Key is included after the assessment pages in this activity.

**Student Assessment Sheet**  
**Assessing Revenue, Costs and**  
**Maximum Profit**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Multiple Choice**

1. Unit cost is the same as:
  - a. Fixed cost
  - b. Variable cost
  - c. Average cost
  - d. Marginal cost
2. Total Revenue will always increase when:
  - a. Prices rise
  - b. Marginal Revenue is positive
  - c. Quantity Demanded rises
  - d. Marginal Cost is negative

**True or False**

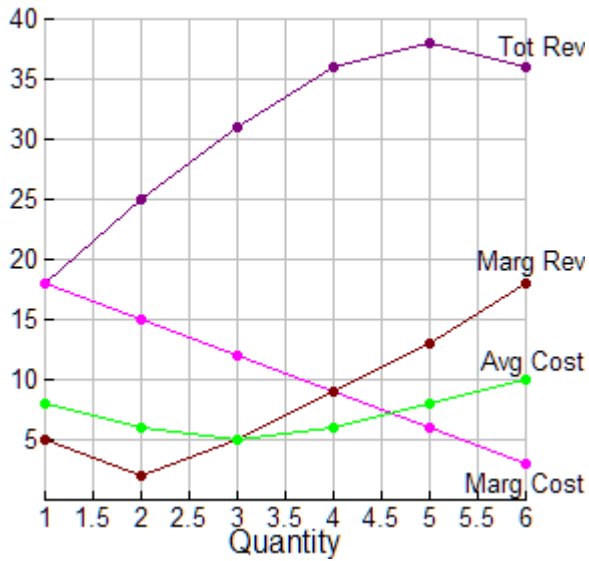
3. A negative value for Marginal Revenue means that the company has a negative profit.  
\_\_\_\_ True  
\_\_\_\_ False
4. Average cost will always increase as production increases.  
\_\_\_\_ True  
\_\_\_\_ False

**Fill in the Table**

5. Complete the following table and determine the level of production that will maximize profits.

Price	Quantity	Total Revenue	Marginal Revenue	Total Cost	Marginal Cost	Average Cost	Profit
16	0			5			
14	1			9			
12	2			12			
10	3			17			
8	4			22			
6	5			29			

6. Using the graph below, identify the quantity that should be produced to:
- maximize revenue: \_\_\_\_\_
  - minimize unit cost: \_\_\_\_\_
  - maximize profit: \_\_\_\_\_



**Extended Response**

7. Many business owners may think that by charging a higher price or selling more goods, they will be able to maximize profits. On a separate sheet of paper, write a letter to explain what factors contribute to maximizing profits and justify your answer. Include a discussion of total and marginal revenue and average and marginal cost.

To assist in providing a focus, select a local business as the recipient of the letter.

**Teacher Guide**

**Answers to the Assessment**

**Multiple Choice Questions**

1. C.
2. B.

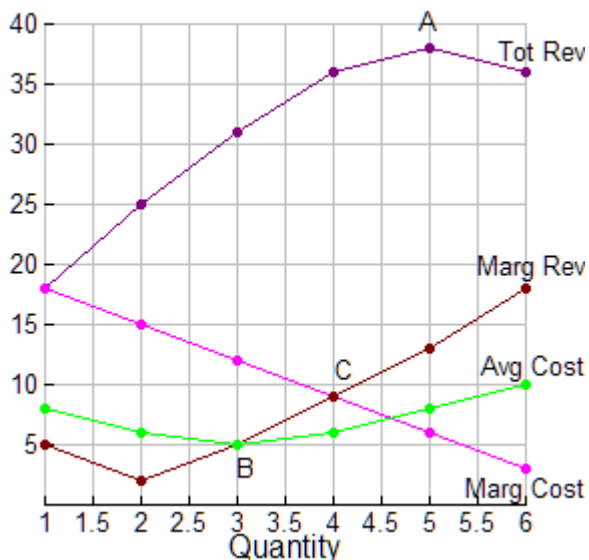
**True – False Questions**

3. False
4. False

5. The table should be completed as follows (Student response areas are shaded):

Price	Quantity	Total Revenue	Marginal Revenue	Total Cost	Marginal Cost	Average Cost	Profit
16	0	0	0	5	5		-5
14	1	14	14	9	4	9	5
12	2	24	10	12	3	6	12
10	3	30	6	17	5	5.67	13
8	4	32	2	22	5	5.50	10
6	5	30	-2	29	7	5.83	1

6. The graph below shows the points that answer the question.



***Extended Response***

7. The extended response should use persuasive techniques and facts to explain to the business owner:
  - ◆ Why an increase in price or increase in quantity may not mean an increase in revenue or profit.
  - ◆ Why simply maximizing revenue or minimizing unit costs will not necessarily maximize profit.
  - ◆ Why marginal revenue equal to marginal cost produces maximum profit.

## ***Teacher Guide***

### ***Suggested Scoring Rubrics for Extended Response Question***

5=Exceeds standard

4=Meets standard

3=Approaching standard

2=Partially meets standard

1=Other

5 =This response shows understanding of the content. The response is thorough and complete. The response is accurate and provides ample evidence to support the response.

4 =This response shows general understanding of the content. The response is substantial. The response is generally accurate but may include some minor errors. There is general evidence to support the response.

3 =This response shows partial understanding of the content. The response is incomplete but on topic. The response may include errors. There is some evidence to support the response.

2 =This response shows limited understanding of the content. The response is incomplete and may include off-topic information. The response includes misunderstandings and errors. The response lacks meaningful evidence.

1 =Other