

Application Problem 2

Name: _____

Due: April 10, 2006*Section 10.5 Optimization Problems Review*

1. A company manufactures and sells x air-conditioners per month. The monthly cost and price-demand equations are

$$C(x) = 180x + 20,000$$

$$p(x) = 220 - 0.001x$$

for $0 < x < 100,000$.

- (A) How many air-conditioners should the company manufacture each month to maximize its monthly profit? What is the maximum monthly profit, and what should the company charge for each air-conditioner to realize the maximum monthly profit?

(B) Repeat part (A) if the government decides to tax the company at the rate of \$18 per air-conditioner produced. How much revenue will the government receive from the tax on these air-conditioners?

2. Formulas Needed:

Volume of Rectangular Box with a square base = _____

Volume of a Cylinder = _____

On your own paper, do problem #24 on page 704-5 of your text. Be sure everything is legible.