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Econ 304—Bethany College

**Homework 06**

Answer all the following on a ***typed, stapled*** (if applicable)separate sheet of paper. Make sure that you justify your answers, use your own words, and show your work. All questions are equally weighted.

1. Recall the location model discussed in class. Suppose there is increasing marginal cost to travel; thus x is indifferent between Firm A and Firm B when:

$$-p\_{B}-τ\left[x-(L-b)\right]^{2}=-p\_{A}-τ\left[x-a\right]^{2}$$

Determine the new demand curve for Firm A. (Note I removed the absolute values because, with squaring the distances to reflect increasing marginal cost of travel, the absolute values are no longer needed.)

1. If you do a little more math to your answer in Question 1, you should also get Firm A’s profit (since we assume zero costs, profit equals revenue):

$$π\_{A}=\frac{p\_{A}\left(p\_{A}-p\_{B}\right)}{2τ(a+b-L)}+\frac{p\_{A}\left[L\left(2b-L\right)+a^{2}-b^{2}\right]}{2(a+b-L)}$$

 And Firm B’s profit equation:

$$π\_{B}=\frac{p\_{B}\left(p\_{B}-p\_{A}\right)}{2τ(a+b-L)}+\frac{p\_{B}\left[L\left(2a-L\right)-a^{2}+b^{2}\right]}{2(a+b-L)}$$

Set up the equation to solve for the price Firm A charges or the price Firm B charges. Note I’m not asking you to actually solve for pA or pB, just to get to the point where you would start to do a lot of tedious algebra.

1. Consider the following quote:

MP3 players, on the other hand, seem to be designed with more rapid planned obsolescence in mind. Unlike many gadgets, these units are rarely upgradable with more memory, meaning consumers are more likely to buy a whole new unit after they fill up their old one.[[1]](#footnote-1)

Is this actually an example of planned obsolescence? Why or why not? If it isn’t, offer a reason why aren’t MP3 players easily upgradable.

1. For each of the following examples of price discrimination, indicate which type of price discrimination it most resembles. Justify your answer with ***no more*** than two sentences.
	1. Buying chapters assembled as a textbook rather than buying them individually.
	2. Charging more for electricity during times of the day when energy demand is high.
	3. Getting Adobe Acrobat Reader for free while being charged for the advanced version.
	4. Costco charging a flat rate to buy from their store and then separately charging customers for each item they buy.
2. Describe ***two*** example of price discrimination not discussed in class. Justify why these are examples of price discrimination.
1. <http://www.thedailygreen.com/environmental-news/latest/planned-obsolescence-460210?fb_comment_id=fbc_10150169117388288_25976697_10151537190323288#slide-8> [↑](#footnote-ref-1)