# Problem Set 3
# Econ 3250

## 1

Optimal monopoly pricing is found by $\frac{p-MC}{p} = \frac{1}{\epsilon}$. So $\frac{p-MC}{p} = \frac{500-200}{500}$ or 0.6, which is greater than $1/\epsilon$ (1/2). This tells us that the price/cost margin is too high, so a lower price ($400) would be optimal. Do not use AC here, as finding the price/cost margin will provide an incorrect answer.

## 2

a.) $1/1.25 = \frac{p-2}{p}$
p = 1.25p-2.5
2.5=0.25p
p=10
b.) When the patent expires the elasticity will increase. This implies that consumers will be able to substitute away from your product, and you will have to lower the price.

## 3

This is an example of third-degree price discrimination. The market is segmented into new subscribers and repeat subscribers. New subscribers, know the product less well and are thus likely to be more price sensistive. Moreover, the fact that they have not subscribed in the past indicates that they are likely to be willing to pay less than current subscribers. It is therefore optimal to set a lower price for new subscribers.

## 4

Yes, this is PD. You are asking consumers to self-select into their WTP. This would be 2nd degree PD. Because the MC of transferring the album over the internet is almost 0, there is no harm in having some people pay nothing. In all likelihood their WTP was 0 anyway, as they probably would have pirated the album instead of purchasing it. This is not 1st degree PD, as it is unlikely that some Radiohead super fan willing to pay $1,000 would do so, instead grouping in the high contributors. In fact, most buyers will probably pay less than their true WTP, but group into various categories of payers.

## 5

This is likely third degree price discrimination, discriminating by group. They likely assess price based on things like skin color, accent, clothing. They can do this by selling to locals at prices not listed. This almost certainly means that locals have a higher price elasticity as they know how to shop around than do tourists. We aren't absolutely sure that this is the case, however, it could be a bulk discount for locals. It could be

shopping at different times that gives away the differing willingness to pay. It could be using credit versus cash. There are other possible explanations beyond skin color and accent.

# 6

(a) It is optimal to price the full version at 400 and the scaled-down version at 50. Total profits are 450.

(b) One first possibility would be to price the intermediate version at 75 and the full version at 400. However, this would lead professionals to choose the intermediate version since the difference between willingness to pay and price is greater for the intermediate version. In order to induce professionals to by the full version, the full version's price would need to be 75+(400-200)=275, where the value in parentheses is the professionals' difference in willingness to pay between the two versions. This would lead to a total profit of 275 + 75=350, which is lower than initially. Still another possibility would be to price the full version at 400 and the intermediate version at 400 - (400-200) = 200. In this case, professionals would buy the full version but students would not buy the intermediate version. Profits would then be 400: better than 350 but still less than the 450 the firm would get with the truly scaled-down version.