

ECON 321, Assignment 7:
BP, Chapter 4: 4.2
Free Entry and Monopolistic Competition

1. Read 4.2.1. Note Lesson 4.3, which may seem a bit counter-intuitive.
2. Read 4.2.2. This *business stealing* result works great for the Cournot model, but it's hard to translate to Bertrand because the demand functions are "custom-built" for the number of firms.
3. Skim 4.2.3. This is one way to build up Bertrand demand functions that admit any number of firms. We'll come back to this model later.
4. Read Section 4.2.4. Yes, it gets messy, but it's our best way out of the problem of how to get a large number of product-differentiated firms into a model. Let's work through it, and you don't have to use Mathematics unless you want to.

First, let's just assume $\gamma y = 1$. These terms are needed to make sure this all follows from a reasonable utility function U , but for our purposes, let's just assume the consumer spends total amount 1 on composite good \tilde{q} . Then we can just start with the Lagrangian.

Let's also take the case of $\sigma = 2$ to get rid of one more piece of notation. Then write down the Lagrangian, and each line of math afterward. Note there are $n+1$ first order conditions, and the way to keep that from being too messy is to add them all up for "Combining these two inequalities..." Write in words what you do to go from one line to the next.

You can stop writing when you get to the part about the social optimum. Just relax and read the last bit and contemplate Lesson 4.6.