ECON 321, Assignment 7:

BP, Chapter 4: 4.2.1 and 4.2.2
Free Entry and Business Stealing

1. Read 4.2.1. We're going to graph this below.

2. Read 4.2.2. Let's work with the linear model $P(q) = a - bq$ and $C(q_i) = cq_i$ introduced right after Lesson 4.4, and in fact might as well set $P(q) = 10 - 2q$ since it's so familiar now.

3. Confirm that the equilibrium quantity $q(n)$ is as given in the text. (You can refer back to Section 3.2.1 and class notes from Class 4 for help. This is hard to do in Mathematica, so you don't have to use Mathematica if you don't want.)

3. Using Mathematica and the equilibrium Cournot quantity $q(n)$, find the equilibrium price and equilibrium operating profit of n firms. (The operating profit is just the profit not including the fixed cost of entry, it would be $\pi(n) + e$ using the book's notation, but I would call it $\pi^{op}(n)$.)

4. Let $c = 1$ and $e = 1.5$. Make a plot of the operating profits per firm ($\pi^{op}(n)$) and the entry cost for n from 1 to 10. What is the free entry number of firms? how does the plot and the free entry number of firms change if c changes to 4.