

**EE481 Homework 1:** Due Wednesday 11<sup>th</sup> September by 2pm (through the turn-it-in program)

To submit your homework, you need to create a student account at [www.turnitin.com](http://www.turnitin.com)

- For the class ID section, put in the followings: Class ID 2221622, Enrollment Key 1248
- Submit your homework either in PDF or JPEG by uploading under the “Homework 1” topic. So, for those who do your homework on traditional papers, simply take clear pictures of your homework and upload them.

Here are the 4 problems you need to do for this homework

1. (Dominant: 10 points) Find one industry with a dominant firm (apart from search engine/Google).
  - Describe what this industry is
  - Name the dominant firm and at least a few fringe firms
  - What’s the dominant firm’s market share?
  - Why do you think they have become a dominant firm?

**Important:** Write about 0.5 page. Please write in your own words and give references to your sources of information. You can write about the same industry as your friends, but please do not copy them. Very similar responses to the question will only receive 25% of the full points.
2. (Dominant: 10 points) Would a profit-maximizing dominant firm ever produce more than if it were a monopoly? (*Hint:* Show the behavior of both monopoly and dominant firm (in the no-entry model) on the same graph and note where the marginal revenue curves cross.
3. (Competition: 10 points) If the demand curve is given by  $Q(p) = p^\varepsilon$ , what is the elasticity of demand? If the marginal cost is \$1 and  $\varepsilon = -2$ , what is the profit-maximizing price?
4. (Game Theory: 10 points) **Ericsson vs. Nokia.** Suppose that Ericsson and Nokia are the two primary competitors in the market for 4G handsets. Each firm must decide between two possible price levels: \$100 and \$90. Production cost is \$40 per handset. Firm demand is as follows: if both firms price at \$100, then Nokia sells 500 and Ericsson 800; if both firms price at \$90, then sales are 800 and 900, respectively; if Nokia prices at \$100 and Ericsson at \$90, then Nokia’s sales drop to 400, whereas Ericsson’s increase to 1,100; finally, if Nokia prices at \$90 and Ericsson at \$100 then Nokia sells 900 and Ericsson 700.
  - (a) Suppose firms choose prices simultaneously. Describe the game and solve it.
  - (b) Suppose that Ericsson has a limited capacity of 800 units per quarter. Moreover, all of the demand unfulfilled by Ericsson is transferred to Nokia. How would the analysis change?
  - (c) Suppose you work for Nokia. Your Chief Intelligence Officer (CIO) is unsure whether Ericsson is capacity constrained or not. How much would you value this piece of info?