Problem 1

Krispy Kreme (Firm A) and Dunkin Donuts (Firm B) compete in a Cournot donut market (i.e. they compete by deciding how many donuts to fry up each morning) with the inverse donut demand curve $P = 120 - 2Q$ and donut marginal cost $MC = 60$.

(a) Find donut consumer surplus, donut producer surplus, and donut deadweight loss if the firms compete and play the Nash Equilibrium. (Okay, I'll stop doing that now.)

(b) Suppose the two firms propose to merge and they are no other competitors or entrants in the industry. What would be the pre- and post-merger Hirschman-Herfindahl indices in the industry?

(c) Find consumer surplus, producer surplus, and deadweight loss after the firms merge.

(d) By how much would marginal costs need to fall in part (c) to leave consumer surplus unchanged from part (a)? What would producer surplus and deadweight loss be?

(e) By how much would marginal costs need to fall in part (c) in order to leave total welfare unchanged?

Problem 2

Firm A sells donuts and Firm B sells coffee. Their respective demand functions are

$$Q_A = 150 - 4P_A - 2P_B,$$
$$Q_B = 150 - 4P_B - 2P_A.$$

Each firm has a marginal cost of $MC = 15$.

(a) Find prices if the firms engage in Cournot competition.

(b) If the firms merge, do you expect the prices to increase or decrease?

(c) Find prices if the firms merge.

Problem 3

Determine whether the following statements are true or false and explain why.

(a) A merger of Krispy Kreme and Dunkin Donuts is an example of a vertical merger.

(b) A merger of Safeway and DiGiorno Pizza is an example of a vertical merger.

(c) When determining the relevant product market using a SSNIP test, regulators consider both (i) whether consumers will purchase substitutes instead, and (ii) whether consumers will stop purchasing altogether.