TEST 9 VERSION A
"Antitrust Policy on Monopolization and Price Discrimination"

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Mobile phones or other wireless devices are NOT permitted. Points will be subtracted for illegible writing or incorrect rounding. Point values for each question are noted in brackets.

I. Problems: Insert your answer to each question below in the box provided. Feel free to use the margins for scratch work—only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.
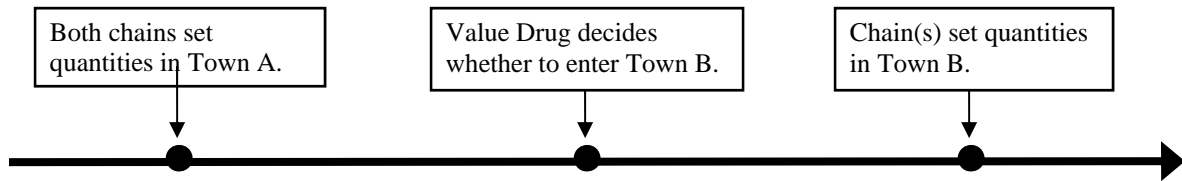
(1) [Cases: 10 pts] Consider the following list of important cases:

- Standard Oil v. U.S. (1911).
- U.S. v. U.S. Steel (1920).
- U.S. v. Alcoa (1945).
- U.S. v. United Shoe Machinery (1953).
- U.S. v. Grinnell Corps (1966).
- Utah Pie v. Continental Baking (1967).
- Berkey Photo v. Kodak (1979).
- MCI v. AT&T (1982).

Complete each sentence below with the appropriate case from this list.

a. One remedy for monopolization is to break up the firm, as was done in the case of ...	
b. The Supreme Court stated that "the law does not make mere size an offense" in the case of ...	
c. The Seventh Circuit Court articulated the "essential facilities" doctrine in the case of ...	
d. The Supreme Court often makes the mistake of "protecting competitors instead of protecting competition," according to Justice Potter Stewart's dissenting view in the case of ...	
e. A Circuit Court decision admitted the right of a dominant firm to "compete aggressively" in the case of ...	

(2) [Predatory pricing: 33 pts] Two drugstore chains (Discount Drug and Value Drug) both have stores in Town A. In addition, Discount Drug already has a store in Town B. Value Drug may decide to put a store in Town B, but entry would require Value Drug to pay some start-up costs (for advertising, etc.). The time line for the firms' interaction is as follows.

| Both chains set quantities in Town A. | Value Drug decides whether to enter Town B. | Chain(s) set quantities in Town B. |

The demand curve for each town is **P = 20 – (Q/10).** For both companies, marginal cost is constant and equal to average cost. For Value Drug, marginal cost is **$ 2**. However, Value Drug is unsure whether Discount Drug's marginal cost is **$ 2** or **$ 8**.

If both firms' marginal costs are $2, then the **symmetric Cournot duopoly** equilibrium is $q_D = q_V = 60$.
   a. Compute the Cournot duopoly price in this case. $

   b. Compute Value Drug's profit in Town B in this case, ignoring start-up $
      cost.

If instead Discount Drug's marginal cost is $8, then the **asymmetric Cournot duopoly** equilibrium is $q_D = 20$ and $q_V = 80$.
   c. Compute the Cournot duopoly price in this case. $

   d. Compute Value Drug's profit in Town B in this case, ignoring start-up $
      cost.

Suppose Value Drug believes there is a 50% chance that Discount Drug's marginal cost is $2, and a 50% chance that Discount Drug's marginal cost is $8.
   e. Compute Value Drug's expected profit in Town B, ignoring start-up cost. $

   f. If the start-up costs of entering Town B are **$ 600** , should Value Drug
      enter Town B if it is uncertain of Discount Drug's marginal cost? Answer
      "Yes" or "No."

Now in fact, Discount Drug's marginal cost and average cost are both $8, though Value Drug does not know this.
   g. Compute Discount Drug's total combined profit in both Towns A and B $
      from simply playing each Town as an asymmetric Cournot duopoly.

Suggest an alternative strategy for Discount Drug that will generate higher total profit.
   h. What quantity should Discount Drug set in Town A—20 or 60?

   i. What quantity should Discount Drug set in Town B?

   j. Compute Discount Drug's total combined profit in both Towns A and B. $

   k. Explain why your suggested strategy is successful.

(3) [Perfect price discrimination: 42 pts] Suppose Acme Corporation is a monopoly and faces the demand, marginal cost, and average cost curves shown below.
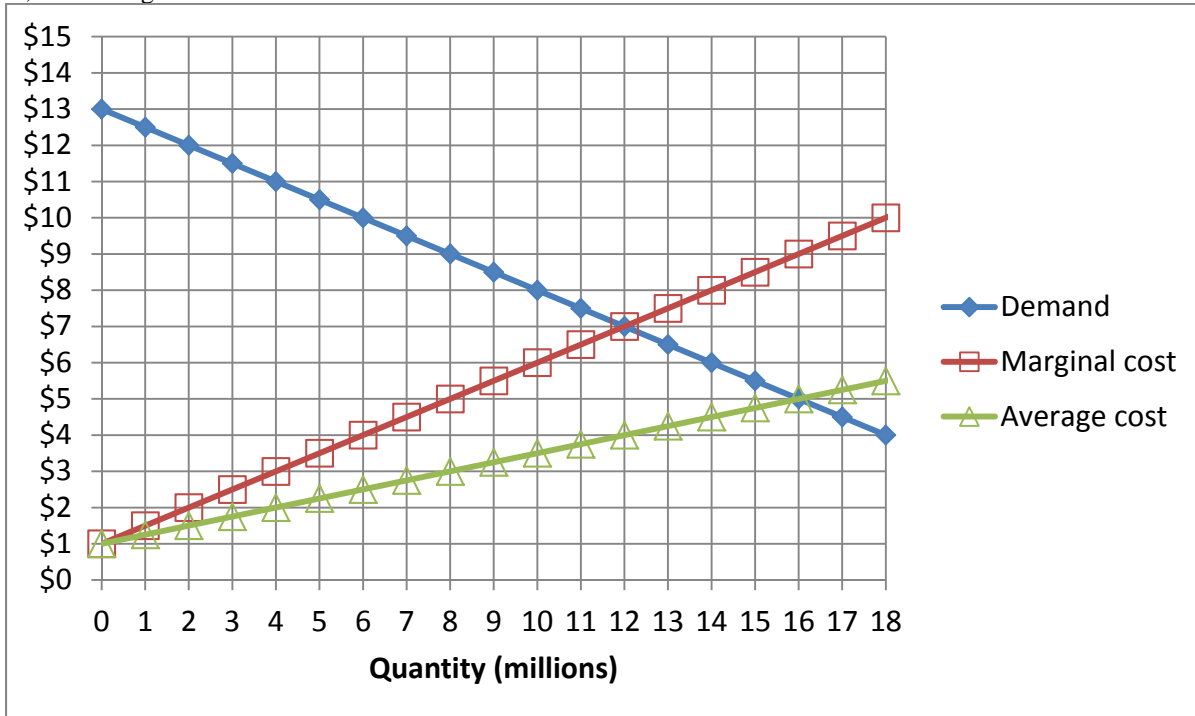
First, assume that Acme Corporation must set a single price for all customers.
   a. Using a straightedge, draw and label Acme Corporation's marginal revenue curve on the graph above.
   b. What price will Acme Corporation set to maximize profit? $

Alternatively, assume that Acme Corporation can set a different price for each unit sold, according to buyers' willingness to pay. That is, assume that Acme Corporation can engage in perfect ("first-degree") price discrimination.
   c. What is the highest price Acme Corporation will set for any buyer? Give $
      an answer to the nearest whole dollar.
   d. What is the lowest price Acme Corporation will set for any buyer? Give an $
      answer to the nearest whole dollar.

Compare these two situations by computing the following.

	Single-price monopoly		Perfect price discrimination	
e. Quantity produced.		million		million
f. Total revenue.	$	million	$	million
e. Total cost.	$	million	$	million
f. Total profit.	$	million	$	million
e. Consumer surplus.	$	million	$	million

(4) [Monopoly price discrimination: 8 pts] Suppose the elasticity of demand for movie tickets by students is
-9, and the elasticity of demand for movie tickets by the general public is **–2** . Suppose the movie theatre has a
local monopoly and a marginal cost of **$ 4** per person.

    a. Compute the profit-maximizing price for tickets sold to students.

$

    b. Compute the profit-maximizing price for tickets sold to the general public.

$

II. Critical thinking [7 pts]

In 2009, T3 Technologies, a small maker of mainframe computers, filed an antitrust complaint against IBM, the
dominant maker of mainframe computers. T3 charged that IBM had suddenly refused to license critical software
required by T3's computers.[1] In fact, T3 made its complaint in Europe, but suppose T3 were charging IBM with
monopolization in a U.S. court. **What two things** would T3 have to prove? Do you think T3 would succeed?
Why or why not?

[end of quiz]

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[1] Charles Forelle, "IBM Faces Complaint in EU on Software, *Wall Street Journal,* January 20, 2009, p. B7.