# TEST 13 VERSION A
"Regulation and Deregulation of Transportation"

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) [Effects of regulation on cost: 28 pts] The following graph shows demand and producers' minimum average cost for a particular market. Note that, in the absence of regulation, the minimum average cost curve is the market's long-run supply curve.
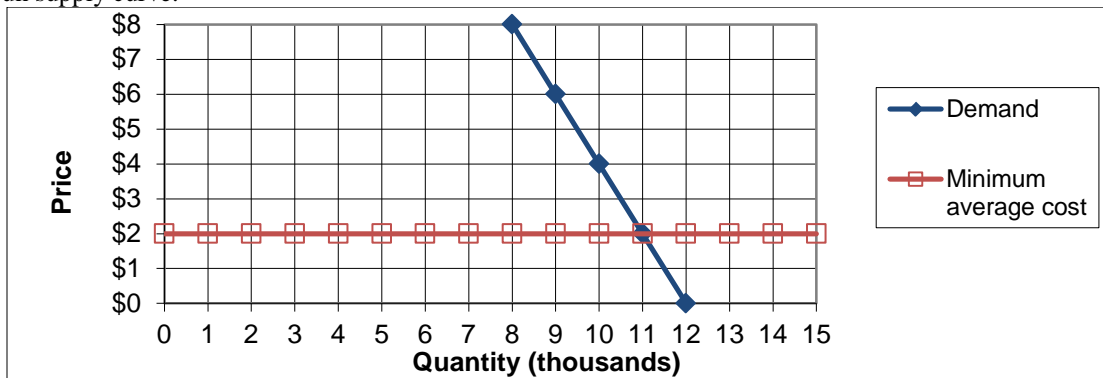
a. Find the competitive equilibrium price.

$ ___

b. Find the competitive equilibrium quantity.

___ thousand

Suppose a price floor (or legal minimum price) of **$ 6** is imposed through regulation.

c. Find the new equilibrium quantity.

___ thousand

d. Compute the social deadweight loss from the price floor.

$ ___ thousand

e. Suppose there is no change in cost. Compute the rents created by regulation—that is, the transfer from consumers to producers.

$ ___ thousand

Suppose alternatively that average cost rises from **$ 2** to **$ 4** as a result of the price floor (perhaps because all firms become inefficiently small or use inefficient input combinations).

f. Now recompute the rents created by regulation—that is, the transfer from consumers to producers.

$ ___ thousand

g. Compute the total cost of regulation—that is, the social deadweight loss plus the increase in cost.

$ ___ thousand

(2) [Effect of regulation on quality: 28 pts] The following graphs show demand and supply for low-quality and high-quality versions of the same good. Assume average cost also equals marginal cost.
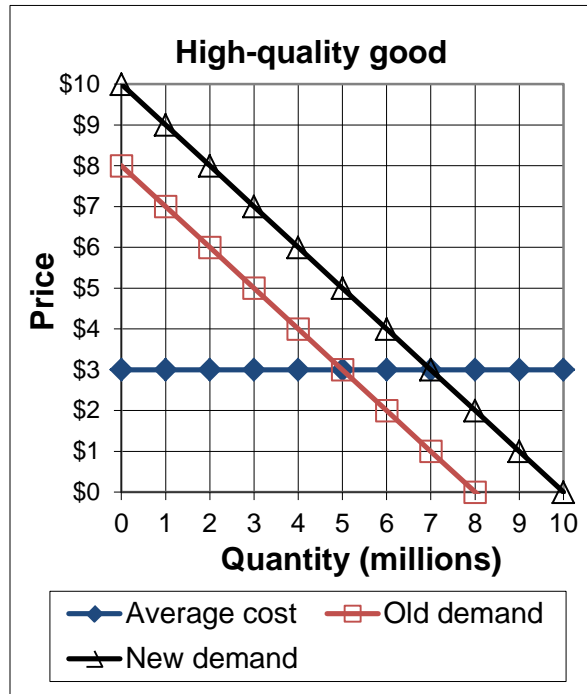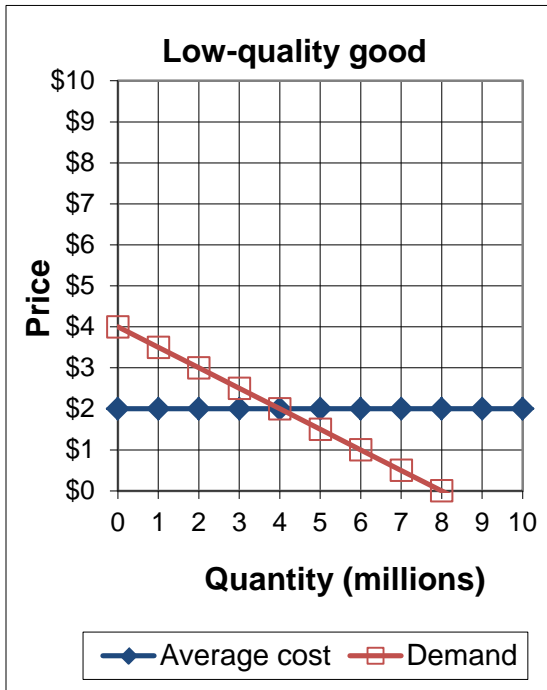
First, consider the market without regulation.

a. Find the quantity purchased of the low-quality good.

	million

b. Assume the demand for the high-quality good is given by "Old demand." Find the quantity purchased of the high-quality good.

	million

Suppose a price floor of **$ 5** is imposed on the low-quality good.

c. Find the new quantity purchased of the low-quality good.

	million

d. Compute the social deadweight loss in the low-quality market from the price floor.

$	million

The low-quality and high-quality goods are substitutes, so demand for the high-quality good shifts right to "New demand." Suppose the same price floor of **$ 5** is now also imposed on the high quality good.

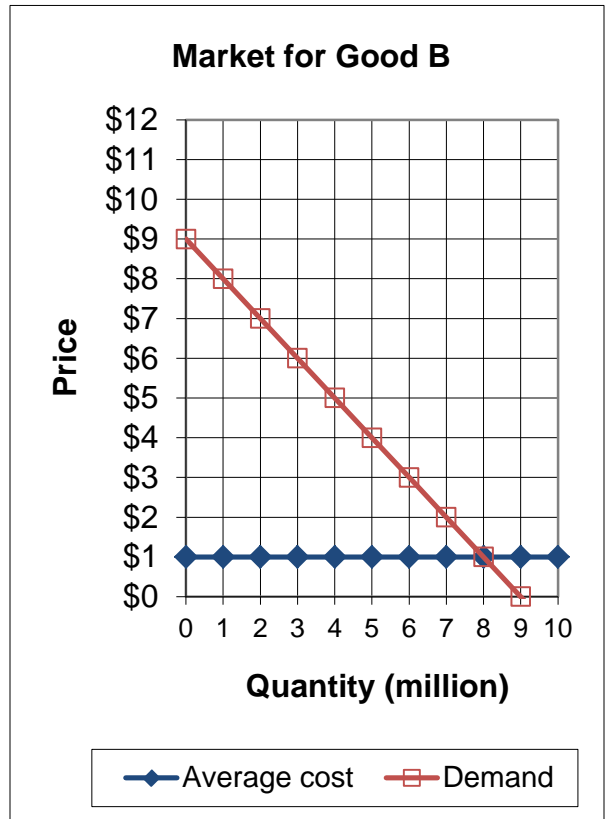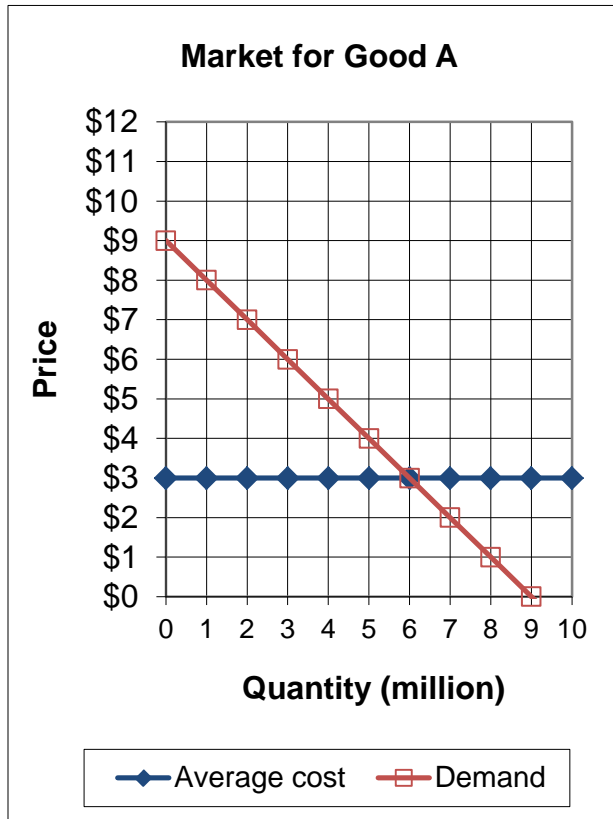e. Find the new quantity purchased of the high-quality good.

	million

f. Compute the social deadweight loss in the high-quality market from the price floor.

$	million

g. Compute the total cost of regulation—that is, the social deadweight loss in the low-quality market plus the social deadweight loss in the high-quality market.

$	million

(3) [Maximum prices and exit restrictions: 20 pts] The following graphs show the demands and average costs for good A and good B. Assume average cost also equals marginal cost.

Market for Good A

Price vs. Quantity (million)

Market for Good B

Price vs. Quantity (million)

Average cost — Demand

Suppose a regulated firm is required to supply good A at a price of **$ 1**.

  a. Compute the social deadweight loss in the market for good A from this pricing policy.

$ million

  b. Compute the loss that the firm will experience in the market for good A from this pricing policy.

$ million

Suppose the regulated firm is permitted to recover its loss in the market for good A by raising price above average cost in the market for good B.

  c. What is the minimum price in the market for good B that would allow the firm to recover its loss in the market for good A?

$

  d. Compute the social deadweight loss in the market for good B from this pricing policy.

$ million

  e. Compute the total cost of regulation with cross-subsidization—that is, the social deadweight loss in the market for good A plus the social deadweight loss in the market for good B.

$ million

(4) [Measuring effects of regulation: 16 pts] Characterize each study below as using one of the following approaches:

- Cross-section market comparison approach.
- Counterfactual approach.
- Difference-in-differences approach.
- Event-study approach.
- Intertemporal (or time-series) approach.

Study	Approach
a. A study finds that after deregulation, Market A enjoyed a 20% decrease in price. Meanwhile Market B, which was never regulated, enjoyed a 5% decrease in price. The study concludes that deregulation caused a 15% decrease in price.	
b. A study finds that passage of the Interstate Commerce Act in 1887 caused the price of railroad stocks to rise.[1] The study concludes that regulation was expected to raise rail prices and profits.	
c. A study finds that fares for unregulated intrastate air fares were substantially less than regulated interstate air fares at the same point in time. The study concludes that regulation raised air fares.[2]	
d. A study finds that trucking rates for most goods fell sharply from the period two years before deregulation to the period five years after deregulation. The study concludes that deregulation lowered trucking rates.	

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[1] Robin A. Preger, "Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry," *RAND Journal of Economics 20* (Summer 1989): pp. 280-290.

[2] Simat, Helliesen and Eichner, Inc., "The Intrastate Air Regulation Experience in Texas and California," in P.W. MacAvoy and John W. Snow, eds., *Regulation of Passenger Fares and Competition among the Airlines*, Washington DC: American Enterprise Institute for Public Policy Research, 1977.

II. Critical thinking [8 pts]

Minnesota raised its minimum wage (for most employees) from $7.25 to $8.00 in August 2014, but Iowa did not. Explain how you would design a "difference-in-differences" study of the effect of this change on employment in Minnesota. What data would you collect? What calculations would you make?

[end of quiz]