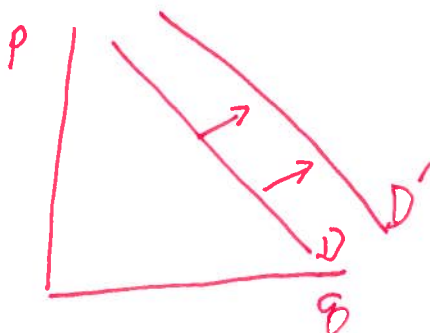


Problem Set #1.  
 PAI 897  
 Professor John McPeak  
 Due 9/19/2016

Name: KEY

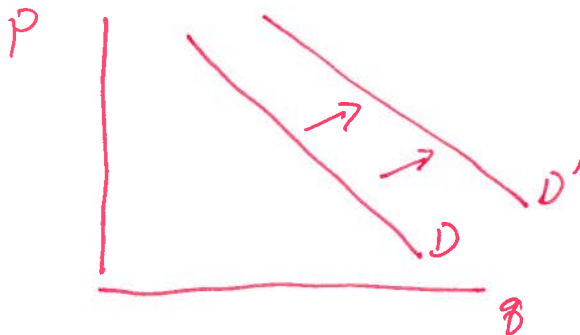
1) How would the following events influence this year's demand curve for New York State Fair general admission tickets compared to last year's demand curve? Draw a graph with price on the y axis and quantity on the x axis to illustrate your answer. Explain briefly your reasoning noting particular which element of the "all else held equal" condition has changed.

a. Economic growth in the CNY area over the past year has increased median income by 12%.



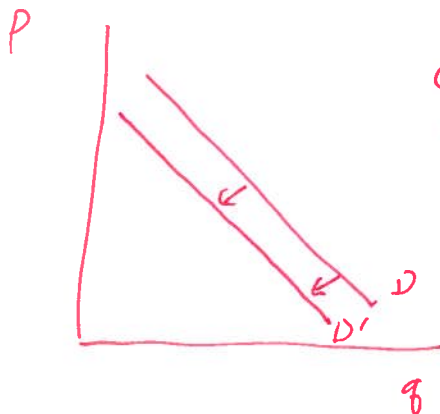
Change (+) in consumers' income

b. Last year, the Skaneateles fair was held at the same time, but had no general admission fee. This year it was also held at the same time, but charged \$5 for general admission.



Change (↑) in the price of a substitute.

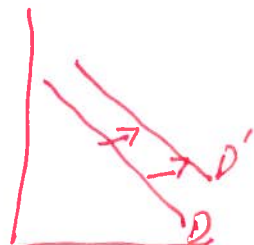
c. New security procedures introduced by recent legislation require that every individual entering the State Fair be thoroughly searched, and prohibit entering with backpacks, strollers, umbrellas, and more than 3 oz. of any liquid or gel.



Change in rules/regulations make it more difficult

- probably -

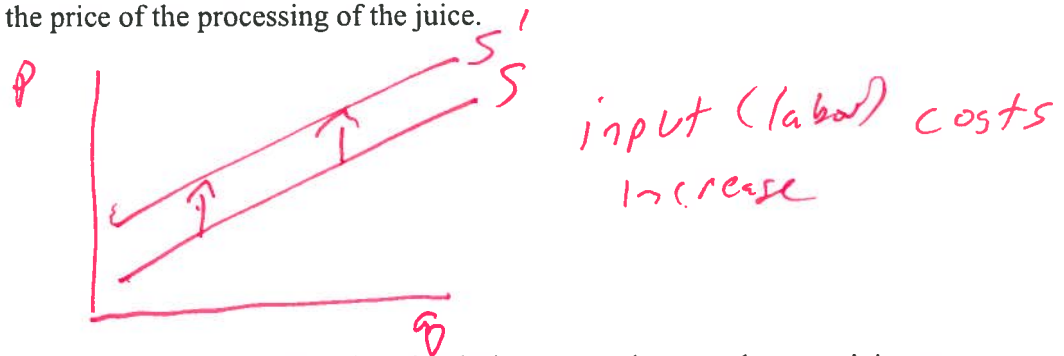
- possible -



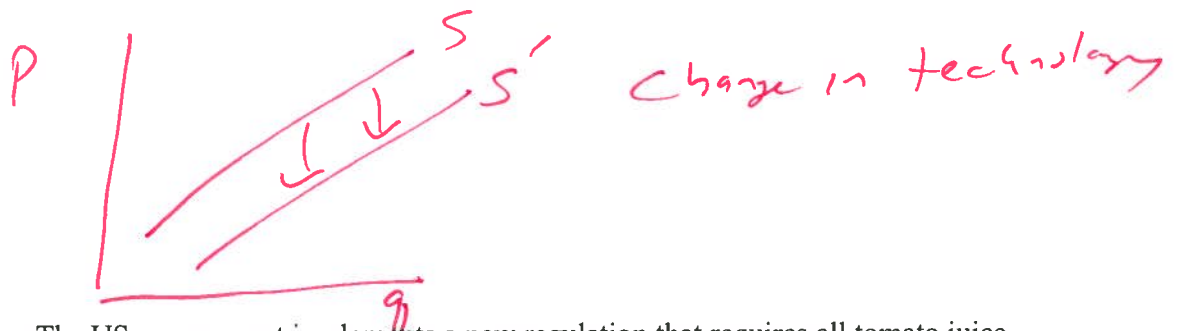
increased security brings people in since they sail

2. How would the following events influence the supply curve for tomato juice? Draw a graph with price on the y axis and quantity on the x axis to illustrate your answer. Explain briefly your reasoning.

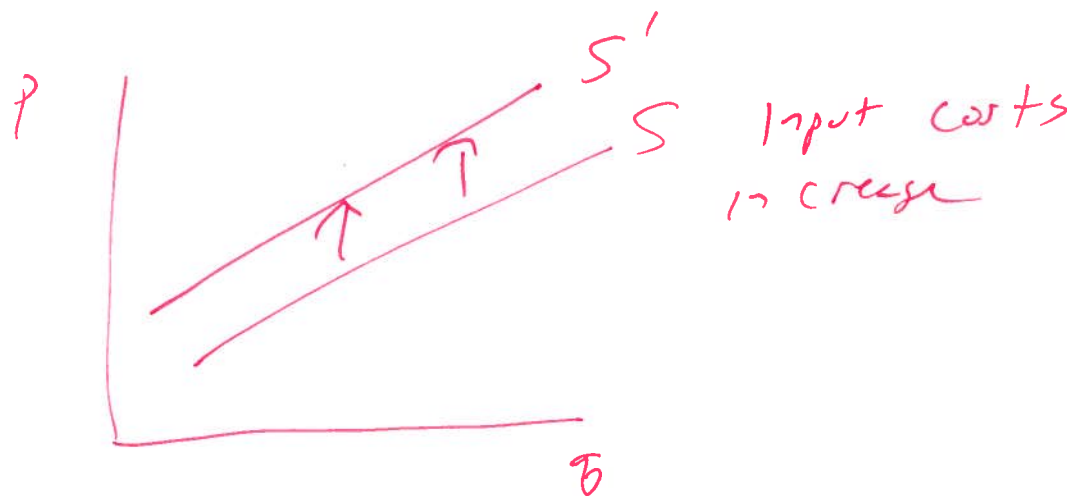
- a. The minimum wage for factory workers is increased by 14%, thereby increasing the price of the processing of the juice.



- b. An engineer at Syracuse University designs a new improved tomato juice press that increases the efficiency of tomato juice production by 6%.



- c. The US government implements a new regulation that requires all tomato juice sold in the US to have at least 50% content of domestic tomatoes, and domestic tomatoes cost more than the imported tomatoes that currently are 80% of juice content.



3. Supply and Demand mechanics.

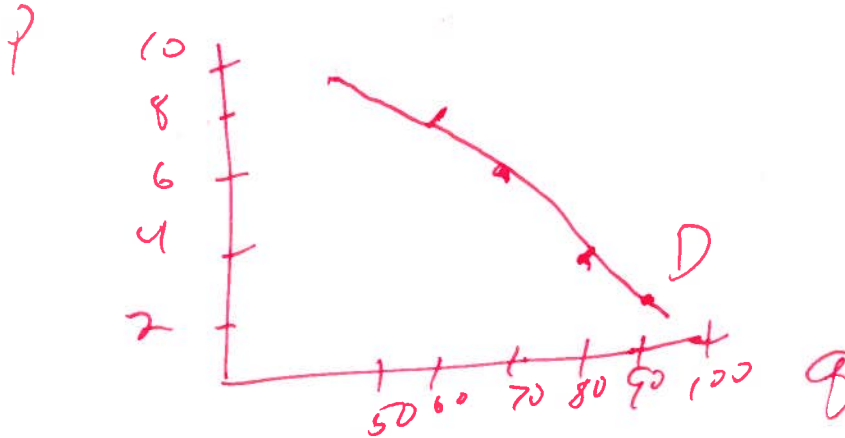
a. Quantity =  $100 - 5 \cdot \text{price}$  is a supply curve or a demand curve? Why?

Demand. Price and quantity have an inverse relationship.

b. Fill in the following chart for the equation provided above.

Price	Quantity
2	$100 - 5(2) = 90$
4	$100 - 5(4) = 80$
6	$100 - 5(6) = 70$
8	$100 - 5(8) = 60$
10	$100 - 5(10) = 50$

c. Graph this information with price on the y axis and quantity on the x axis.



d. If in addition you know that Quantity =  $10 + 10 \cdot \text{price}$ , what is the equilibrium price? What is the equilibrium quantity?

$$100 - 5P = 10 + 10P$$

$$\begin{array}{r} -10 \\ \hline \end{array} \quad \begin{array}{r} -10 \\ \hline \end{array}$$

$$\begin{array}{r} 90 - 5P = 10P \\ +5P \quad \quad +5P \\ \hline \end{array}$$

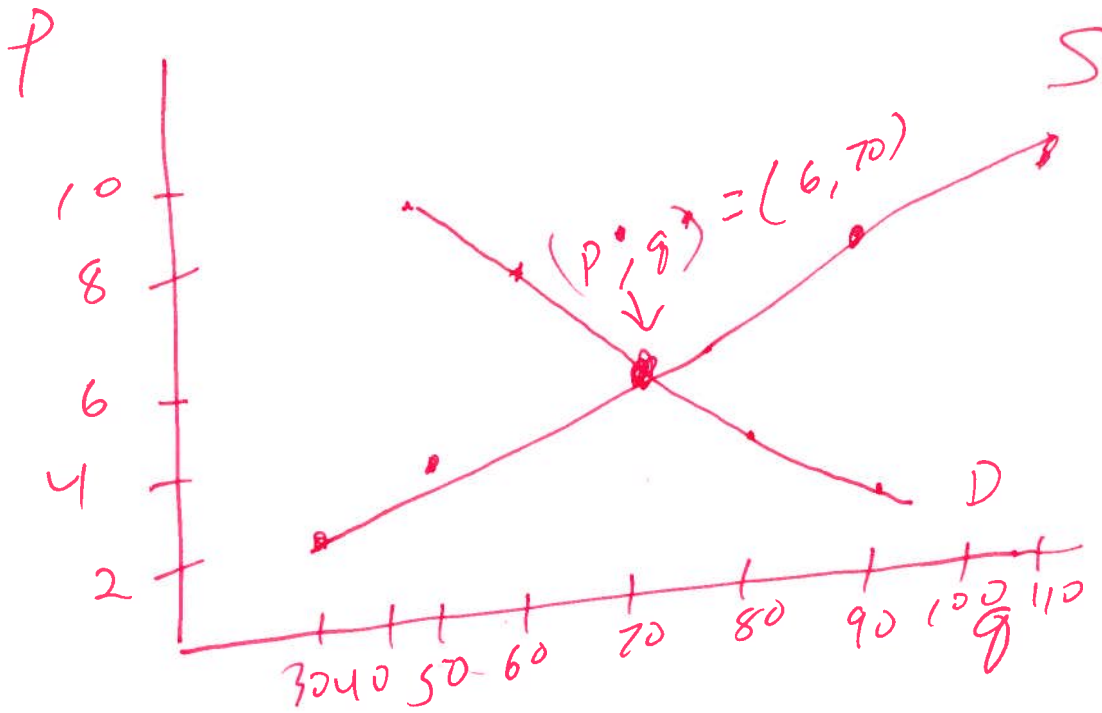
$$90 = 15P$$

$$P = 6$$

$$100 - 5(6) = 10 + 10(6) = 70$$

$$(P^*, Q^*) = (6, 70)$$

e. Graph both these equations, clearly illustrating which is the supply curve, which is the demand curve, the equilibrium price and the equilibrium quantity.



Supply

$$Q = 10 + 10(P)$$

P	Q
2	$10 + 10(2) = 30$
4	$10 + 10(4) = 50$
6	$10 + 10(6) = 70$
8	$10 + 10(8) = 90$
10	$10 + 10(10) = 110$

4. You are given the following information on the demand curve for parking spaces on campus per hour during the working day. The quantity demanded is a function of the price of parking spaces on campus and the price of parking spots on private lots around campus. Statistical estimates suggest this relationship can be expressed as follows:

$$Q_d = 500 - 100 * p_{on} + 50 * p_{off}$$

where

$Q_d$  is the quantity of parking spaces demanded per hour in the working day

$p_{on}$  is the price of parking on campus

$p_{off}$  is the price of parking off campus on the private lots.

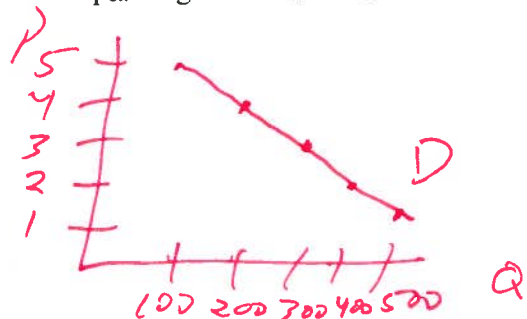
Assume the price of parking off campus is \$2 per hour.

- a. Draw the demand curve for parking on campus when  $p_{on}$  ranges from \$1 to \$5.

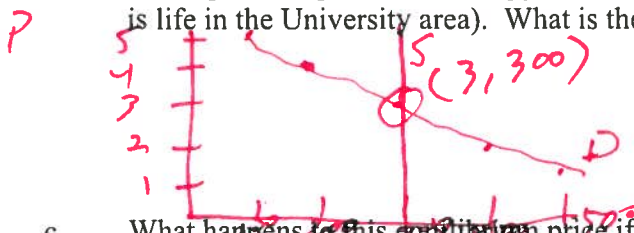
$$Q_d = 500 - 100p + 50(2)$$

$$Q_d = 600 - 100p$$

$p$	$Q$
1	500
2	400
3	300
4	200
5	100



- b. Assume there are only 300 parking spots on campus available ( $Q$  supplied = 300) for all possible prices so the supply curve is a line going straight up at  $q=300$  - such is life in the University area). What is the equilibrium price?



$$600 - 100p = 300$$

$$+100p \quad +100p$$

$$600 = 300 + 100p$$

$$-300 \quad -300$$

$$300 = 100p, p = 3$$

- c. What happens to this equilibrium price if the off campus private lots increase their charges to \$3 per hour and there is no change in the number of parking spaces on campus

$$Q = 500 - 100p + 50(3)$$

$$Q = 500 - 100p + 150$$

$$Q = 650 - 100p$$

$$650 - 100p = 300$$

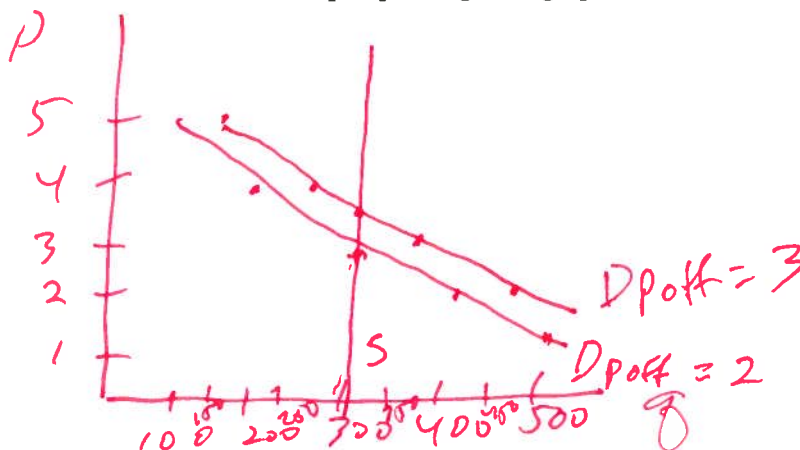
$$350 = 100p$$

$$p = \$3.50, q = 300$$

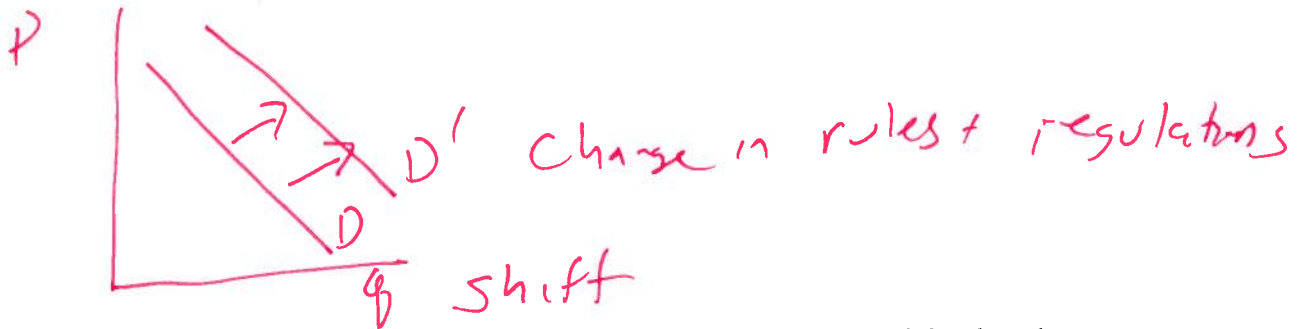
$$600 - 100(3) = 300$$

$$(3, 300)$$

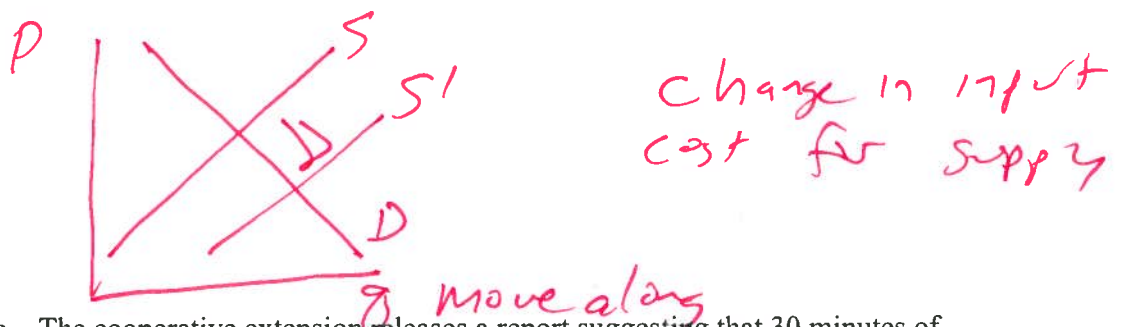
- d. Illustrate how the increase in off-campus parking rates influences the demand curve for on-campus parking on a graph.



- 5) Tell me whether the following will lead to a movement along a demand curve or a shift in the demand curve for shovels in the city of Syracuse and illustrate.
- Syracuse passes a law saying homeowners will be fined \$0.05 per pound of snow left in their sidewalk for more than two days.



- A new contract is signed between the Congolese government and the shovel manufacturers association of America that will regularize the supply of Kisanganimum, a metal that is less costly and more desirable in shovel manufacturing than the currently used materials of steel and plastic.



- The cooperative extension releases a report suggesting that 30 minutes of shoveling snow at a steady pace is more effective in reducing weight than 30 minutes of riding an exercise bike.

