Economics 101-Principles of Microeconomics
Homework 1-Professor Wallace, Spring 2017

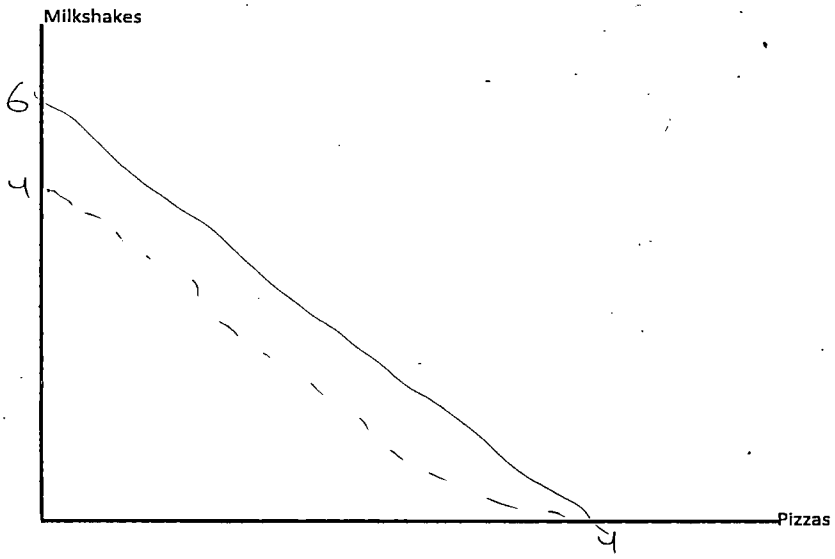
Put the name of each member of your group on each sheet of your homework.
Homework is due in class on Thursday, 23 February. Any homework turned in after 17:00 on 23 February will be considered late and receive a zero for the assignment.

1. The table shows a list of events. Each event affects the market indicated. In each case you should show the effects of the event on demand (D), supply (S), the equilibrium price (P), and the equilibrium quantity (Q). The events are independent in the sense that an event listed in one row of the table does not affect the market in a different row. Use the following symbols.
+ increase or shift right - decrease or shift left U uncertain effect or shift 0 no effect or shift

Market in Kuwait	Event	D	S	P	Q
EXAMPLE-Pizza (normal good)	Income increases	+	0	+	+
Rice	Consumer preferences shift away from rice and towards quinoa	−	0	−	−
Operating systems software for personal computers	Personal computers become more expensive and the costs of producing an operating system decline	−	+	−	U
Eggs	New technology reduces egg breakage during the packing process	0	+	−	+
Enrollment at private universities	A new law restricts government scholarships to students at public universities	+	0	+	+
Donuts	Price of coffee decreases, coffee is a complement of donuts	+	0	+	+

2. Paco must allocate his income of 12 KD each day between milkshakes and pizzas. The price of a milkshake is 2 KD and the price of a pizza is 3 KD.

a. Draw Frodo's budget constraint. Note that pizzas are on the horizontal axis and milkshakes on the vertical axis. Label the points where the constraint touches the axes.



b. What is the opportunity cost of a milkshake? 4/6 P 0.7

c. What is the opportunity cost of a pizza? 6/4 M = 1.5

c. The government imposes a 1 KD tax on milkshake (but not on pizza). Suppose the price of each milkshake increases by 1 KD due to the tax. After imposition of the tax, what is the opportunity cost of a milkshake? 1 P

opportunity cost of Pizza 1.5 M

1.5 → 1

d. After imposition of the tax on milkshakes the opportunity cost of a pizza increases, decreases, does not change, or changes ambiguously (circle one response) and the opportunity cost of a milkshake increases, decreases, does not change, or changes ambiguously (circle one response)

0.7 → 1

In the graph

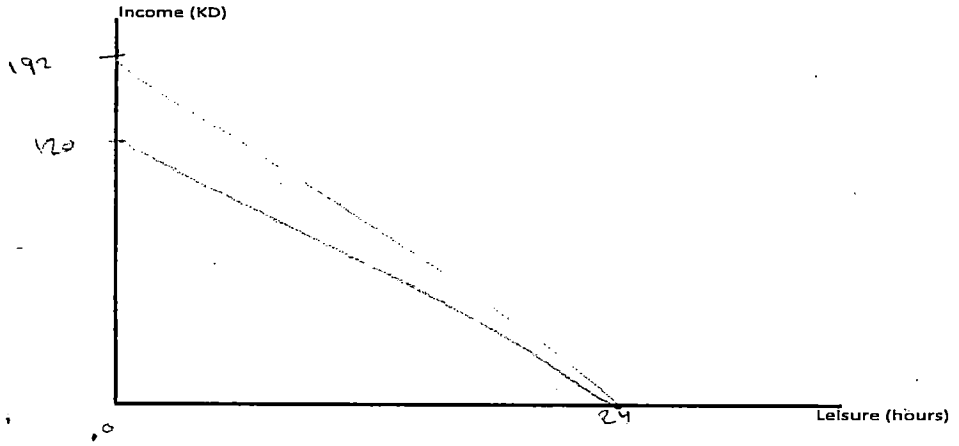
e. In the graph, show the effects of the tax on Frodo's budget constraint. Mark the points where the constraint touches the axes.

3. Paco must decide how much to work each day so he has to split his 24 hours between work and leisure. He earns 8 KD per hour of work.

a. If he does not work, he takes 24 hours of leisure.

b. If he takes no leisure, he works 24 hours and earns 192 KD. 24 × 8

c. Draw the constraint showing his income/leisure tradeoff in the graph.



d. What is the slope of the budget constraint? −8 −192/24 = −8

e. What is the opportunity cost of one KD of additional income? Be sure to indicate the unit of measure. 0.125 H 24/192 = h

f. What is the opportunity cost of one hour of additional leisure? 192/24 = 8 KD

g. Suppose the wage falls to 5 KD. In the graph show the change in the budget constraint. 24 × 5 = 120

1). After the decrease in the wage, what is the opportunity cost of one KD of additional income? 24/120 = 1/5 h

2). After the decrease in the wage, what is the opportunity cost of one hour of additional leisure? 5/1 KD

3) After the decrease in the wage, the opportunity cost of earning 1 KD of income increases, decreases, does not change, or changes ambiguously (circle one response) $\frac{1}{6} \rightarrow \frac{1}{5}$ Increase

4) After the decrease in the wage, the opportunity cost of one hour of leisure increases, decreases, does not change, or changes ambiguously (circle one response) $6 \rightarrow 5$ Decrease

5) After the decrease in the wage, the income effect is positive, negative, uncertain (circle one response)

4. The following two equations have been estimated for the daily demand for and supply of pizza in Salmiya. Use the equations to complete the table and answer the questions. Plot the demand and supply schedules in the graph following the questions. Be sure to label the points where the schedules touch the axes.

Demand $Q^d = 300 - 20P$ Supply $Q^s = 20P - 100$

Price	Quantity Demanded	Quantity Supplied
5	200	0
7	160	40
10	100	100
12	60	140
15	0	200

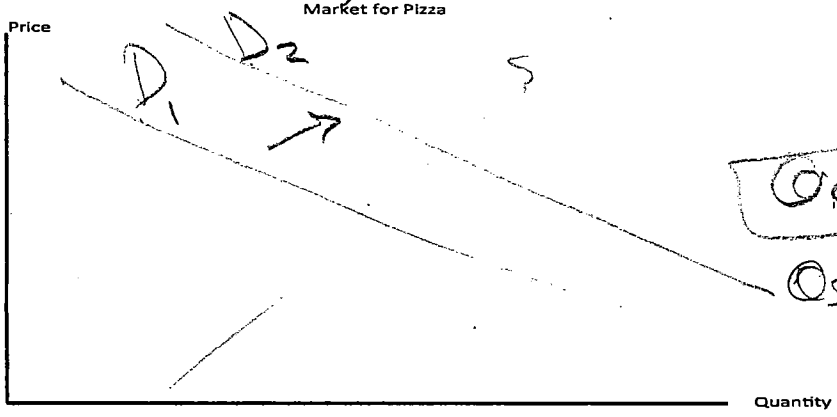
a. Calculate the equilibrium price 10 and equilibrium quantity 100.

b. Given your calculations of the equilibrium price and quantity, is there an excess demand, excess supply, or equilibrium (circle one response) at a price of 7 KD? How much is the excess (answer zero if 7 KD is the equilibrium)? 120

c. Given your calculations of the equilibrium price and quantity, is there an excess demand, excess supply, or equilibrium (circle one response) at a price of 12 KD? How much is the excess (answer zero if 12 KD is the equilibrium)? 80

d. Suppose the price of hamburgers, a substitute for pizza, doubles and suppose this causes the demand for pizza to double at each price. Write the equation for the new demand schedule then solve for the new equilibrium price and quantity.

equilibrium price $\frac{35}{3}$ and equilibrium quantity 133.6.



$Q_d = (300 - 20P) \times 2$

$Q_d = 600 - 40P$

$Q_S = 20P - 100$

equilibrium

$Q_S = Q_d$

$20P - 100 = 600 - 40P$

$20P + 40P = 600 + 100$

$P = \frac{700}{60} = 11.666$

$Q = 600 - 40 \times \frac{35}{3}$

$= \frac{1400}{3}$

$\therefore P = \frac{35}{3}$