Economics 101 Name _____
Summer 2016
Quiz #2 with Answers

This is a ten point quiz. Answer all questions neatly and legibly. Show your work.

1. (1 point) The market for mangoes is initially in equilibrium. You are told that incomes increase and that mangoes are an inferior good. You are also told that at the same time, labor costs for producing mangoes decreases. From this information you predict that the equilibrium price of mangoes will _____decrease_____ while the equilibrium quantity of mangoes ___be indeterminate_____.

2. (4 points) Consider the market for pencils. You are told that when the price is $1 per pencil that 100 pencils are demanded and that 50 pencils are supplied. You are told that when the price is $2.50 per pencil that 50 pencils are demanded and that 125 pencils are supplied. Assume that both the demand and supply curves in the pencil market are linear. From this information calculate the equilibrium price and equilibrium quantity of pencils in this market. Show your work.

Answer:
To answer this question we first need to write the equations for the demand and supply curve.

For the demand curve we know two points: (Q, P) = (100, $1) and (50, $2.50). Using these two points we can calculate the slope of the demand curve as -3/100. Then, use the general slope-intercept form and one of our known points to write the equation. Thus:
$Y = mX + b$
$P = (-3/100)X + b$
$1 = (-3/100)(100) + b$
$1 + 3 = b$
$4 = b$
The demand equation is $P = 4 – (3/100)Q$

For the supply curve we know two points (Q, P) = (50, $1) and (125, $2.50). Using these two points we can calculate the slope of the supply curve as 1/50. Then, use the general slope-intercept form and one of our known points to write the equation. Thus:
$Y = mX + b$
$P = (1/50)Q + b$
$1 = (1/50)(50) + b$
$1 - 1 = b$
$b = 0$
The supply equation is $P = (1/50)Q$

Use these two equations to find the equilibrium price and quantity:
$4 – (3/100)Q = (1/50)Q$
$4 = (3/100)Q + (1/50)Q$

4 = (3/100)Q + (2/100)Q
4 = (5/100)Q
Q = 80 pencils

To find the equilibrium price, use the equilibrium quantity and either the demand or supply equation:
P = 4 - (3/100)(80)
P = 4 - 2.4 = $1.60 per pencil
Or, P = (1/50)(80) = 8/5 = $1.60 per pencil

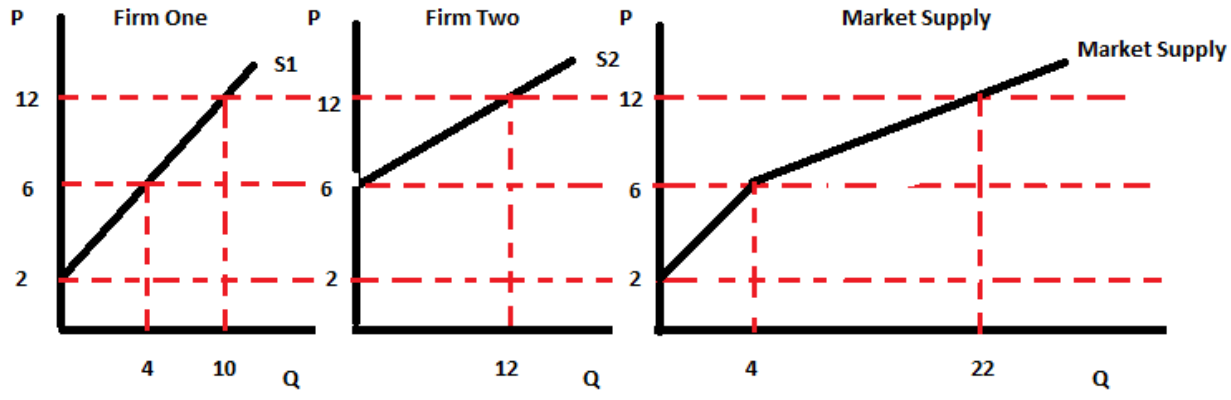
3. (3 points) Consider the market for widgets where there are two firms. You are told that the firms' supply curves are given by the following equations where P is the price per widget and Q is the number of widgets:

Firm One's Supply Curve: Q = P - 2
Firm Two's Supply Curve: Q = 2P - 12

In the space below draw three graphs: in the first graph draw Firm One's Supply Curve; in the second graph draw Firm Two's Supply Curve; and in the third graph draw the market supply curve. Label your graphs clearly and completely. Make sure you identify any intercepts and the coordinates of any kink points that you have.

Answer:

To find this market supply curve you will need to consider at least one price that is greater than 6: your choice of price is arbitrary, but in the graph below I chose 12 as the price. This allowed me to find out the amount supplied by firm one at this price, the amount supplied by firm two at this price, and the sum of these amounts (the amount supplied by the market) at this price. Any price greater than 6 is fine to use, but you do want to pick a price that makes the math as easy as possible.



4. (2 points) In the space below write the equation(s) for the market supply curve you found in #3. If necessary provide the range for each equation. Show your work.

Answer:

The market supply curve consists of two linear segments:
P = 2 + Q is the market supply curve for prices equal to 2 and less than or equal to 6.

The second segment of the market supply curve for prices equal to or greater than 6 will take a bit more work. To write this equation you need to know at least two points: the points that I have provided are (Q, P) = (4, 6) and (22, 12). From these two points we can get the slope of the second segment: m = 6/18 = 1/3. Use one of the known points and y-intercept form to find the y-intercept:
Y = mX + b
P = mQ + b
P = (1/3)Q + b
6 = (1/3)4 + b
18/3 - 4/3 = b
b = 14/3
So, the second segment of the market supply curve is P = (1/3)Q + 14/3 and this is for prices equal to or greater than 6.