Principles of Microeconomics
Third Quiz

Answer all of the questions in the order they are asked. Label your answers so that I will know which question you are answering. For Example, if you are answering question I-A then label the answer I-A.

I. The demand function for football tickets for a typical game at the University is:

\( Q = 200,000 - 10,000P \)

in which \( Q \) = average number of fans that attend each game and \( P \) is the price of a ticket.

The football stadium holds 100,000 fans.

A. Write the inverse of the demand function.
B. Write the equation for the demand curve.
C. Draw the demand curve.
D. Draw the supply curve.
E. What is the equilibrium price?
F. How many fans will attend the game at this price?
G. Will the stadium be full at this price?
H. What is the total revenue at this price?

Suppose a series of winning seasons shifts the demand function to:

\( Q = 300,000 - 10,000P \)

I. Write the new inverse demand function.
J. Write the equation for the new demand curve.
K. Draw the new demand curve.
L. Draw the supply curve.
M. What is the new equilibrium price?
N. How many fans will want to attend at this price?
O. Will the stadium be full at this price?
P. What is the total revenue at this price?

II. Consider the following function: \( Q = 100 - P \)

A. Is this a demand or a supply function?
B. Write the equation for the demand curve or the supply curve implied by this function.
C. Draw a picture of the demand curve or the supply curve
implied by this function and label the intercepts.

D. If \( P = 20 \), what is the value for \( Q \)?

E. What is the maximum amount this consumer will pay for 80 units of \( Q \)?

F. What is the maximum amount this consumer will pay for the eightieth unit of \( Q \)?

Consider the following function: \( P = Q \)

G. Is this a demand or supply function?

H. Write the equation for the demand curve or the supply curve implied by this function.

I. Draw a picture of the demand curve or the supply curve implied by this function and label the intercepts.

J. If \( P = 20 \), what is the value for \( Q \)?

K. What is the total nominal cost of production for 20 units of \( Q \)?

L. What is the marginal cost to produce the twentieth unit of \( Q \)?

M. What is the minimum price the producer will accept for the twentieth unit of \( Q \)?

Use the functions to answer the following:

N. What are the coordinates of the equilibrium point?

O. Draw a graph – or use the graphs you drew above – of the equilibrium solution and label the equilibrium point.

P. What is total revenue at the equilibrium point?

Q. What is total cost at the equilibrium point?

R. What is consumer surplus at the equilibrium point?

S. What is the profit at the equilibrium point?

Use the functions to answer the following:

T. If a per unit excise tax of $10 is levied on the producer does the demand or the supply curve shift?

U. Does the $10 excise tax cause a decrease in the quantity supplied or demanded?

V. Write the equation for the new demand or supply curve.

W. Draw the new demand or supply curve.

X. Find the new equilibrium point?

Y. What is the amount of the excise tax collected?

Z. How much better or worse off are consumers because of the excise tax?

AA. How much better or worse off are producers because of the excise tax?

III. Yesterday I was shopping for my daughter's birthday present. I walked into a women's clothing store. A rack of sweaters
was placed at the front of the store and on it was placed the following sign.

- Buy 1 sweater - Pay $29
- Buy 2 sweaters - Pay $55
- Buy 3 sweaters - Pay $75

A. Draw this firm's marginal revenue curve.

If this firm maximizes profits:

B. What is the minimum profit it earns on the sale of one sweater?
C. What is the minimum profit it earns on the sale of two sweaters?
D. What is the minimum profit it earns on the sale of three sweaters?