

Write all answers legibly and clearly. Show your work to get full credit on this quiz.

1. Consider the market for birdhouses in Microvia, a small, closed economy. This market can be described by the following domestic demand and supply curves where P is the price per birdhouse and Q is the quantity of birdhouses:

$$\text{Domestic Demand Curve for Birdhouses: } P = 20 - (1/5)Q$$

$$\text{Domestic Supply Curve for Birdhouses: } P = 4 + (1/15)Q$$

- a. (1 point) If this market is closed to trade, what is the equilibrium price of each birdhouse and what is the equilibrium quantity of birdhouses? Show your work for full credit.

$$20 - \frac{1}{5}Q = 4 + \frac{1}{15}Q$$

$$16 = \frac{3}{15}Q + \frac{1}{15}Q$$

$$\frac{4}{15}(\frac{15}{1}) = Q$$

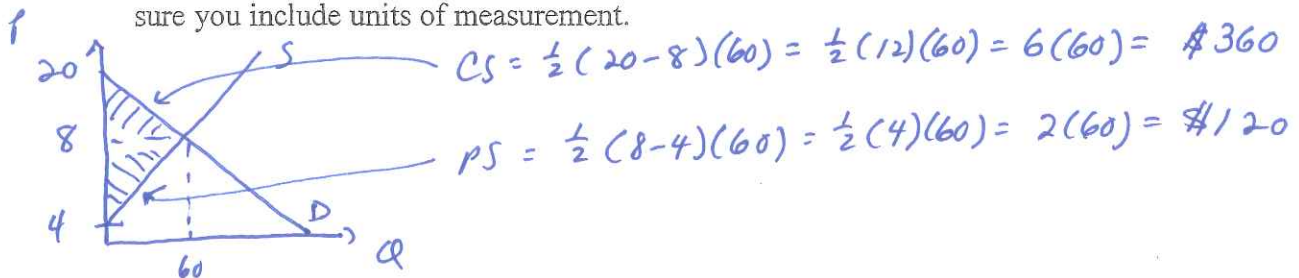
$$60 = Q$$

$$Q_e = 60 \text{ birdhouses} \quad P_e = \$8/\text{birdhouse}$$

$$P_e = 20 - \frac{1}{5}(60) = 20 - 12 = \$8/\text{birdhouse}$$

$$\text{or } P_e = 4 + (\frac{1}{15})(60) = 4 + 4 = \$8/\text{birdhouse}$$

- b. (1 point) If this market is closed to trade, what is the value of consumer surplus (CS) and producer surplus (PS) in this market? Show your work for full credit and make sure you include units of measurement.



- c. (1 point) Suppose that this market opens to trade and that the world price is \$10 per birdhouse. How many birdhouses will domestic consumers demand given this information? How many birdhouses will domestic producers produce given this information?

Domestic consumers will demand 50 birdhouses.

Domestic producers will supply 90 birdhouses.

$$\text{if } P = \$10 \Rightarrow P = 20 - \frac{1}{5}Q_{\text{Dom}}^D$$

$$10 = 20 - \frac{1}{5}(Q_{\text{Dom}}^D)$$

$$\frac{1}{5}Q_{\text{Dom}}^D = 10$$

$$Q_{\text{Dom}}^D = 50 \text{ birdhouses}$$

$$\text{if } P = \$10 \Rightarrow P = 4 + (\frac{1}{15})(Q_{\text{Dom}}^S)$$

$$10 = 4 + (\frac{1}{15})(Q_{\text{Dom}}^S)$$

$$6 = (\frac{1}{15})(Q_{\text{Dom}}^S)$$

$$90 = Q_{\text{Dom}}^S$$

- d. (1 point) Suppose that this market opens to trade and that the world price is \$5 per birdhouse. How many birdhouses will domestic consumers demand given this information? How many birdhouses will domestic producers produce given this information?

Domestic consumers will demand 75 birdhouses.

Domestic producers will supply 15 birdhouses.

$$\begin{aligned} \text{if } P = 5 \Rightarrow P &= 20 - \left(\frac{1}{5}\right)(Q_{Dom}^D) \\ 5 &= 20 - \left(\frac{1}{5}\right)(Q_{Dom}^D) \\ \frac{1}{5}Q_{Dom}^D &= 15 \end{aligned}$$

$$Q_{Dom}^D = 75 \text{ birdhouses}$$

$$\begin{aligned} \text{if } P = 5 \Rightarrow P &= 4 + \left(\frac{1}{15}\right)Q_{Dom}^S \\ 5 &= 4 + \left(\frac{1}{15}\right)(Q_{Dom}^S) \\ 1 &= \left(\frac{1}{15}\right)Q_{Dom}^S \\ Q_{Dom}^S &= 15 \text{ birdhouses} \end{aligned}$$

- e. (2 points) Suppose that this market opens to trade and that the world price is \$5 per birdhouse. At the same time that this market is opened to trade, the government of Microvia implements a tariff that increases the price of birdhouses by \$1 per birdhouse. Given this information and holding everything else constant, calculate the values of the following (make sure you include the appropriate unit of measurement):

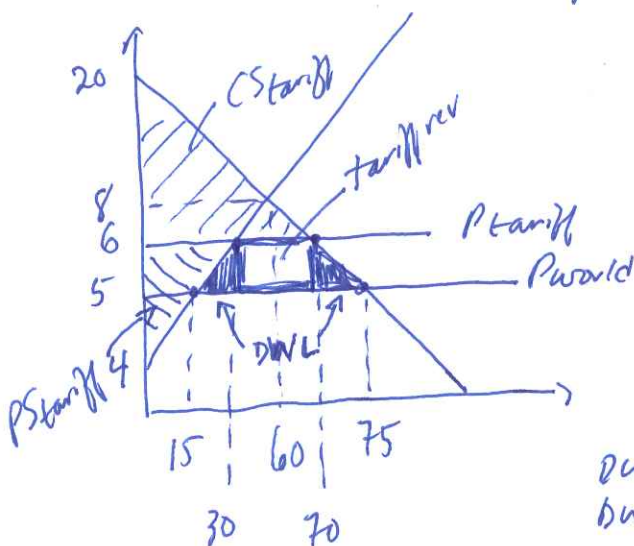
CS with the tariff = \$490.

PS with the tariff = \$30.

DWL due to the imposition of this tariff = \$10.00.

Tariff Revenue for the Government = \$40.00.

Show your work for full credit, but put your answers in the above blanks.



$$\text{if } P = \$6 \Rightarrow 6 = 20 - \left(\frac{1}{5}\right)(Q_{Dom}^D)$$

$$\left(\frac{1}{5}\right)Q_{Dom}^D = 14$$

$$Q_{Dom}^D = 70$$

$$\Rightarrow 6 = 4 + \left(\frac{1}{15}\right)(Q_{Dom}^S)$$

$$2 = \left(\frac{1}{15}\right)(Q_{Dom}^S)$$

$$30 = Q_{Dom}^S$$

$$CS_{\text{tariff}} = \frac{1}{2}(20-6)(70)$$

$$CS_{\text{tariff}} = \frac{1}{2}(14)(70) = 7(70) = \$490$$

$$PS_{\text{tariff}} = \frac{1}{2}(6-4)(30) = \$30$$

$$DWL = \frac{1}{2}(6-5)(30-15) + \frac{1}{2}(6-5)(75-70)$$

$$DWL = 7.50 + 2.50 = \$10$$

$$\begin{aligned} \text{Tariff Rev} &= (\$1)(70-30) \\ \text{Tariff Rev} &= \$40 \end{aligned}$$

2. (2 points: 1 point for explanation and 1 point for numeric value) What is the impact on this year's GDP of the following transaction? Susie sells her Uncle Gus 100 shares of stock in Coca-Cola for \$5 per share during this year. In addition, Susie purchases an antique desk for \$500 from Charley's Antiques this year: \$400 of this purchase represents the value of the desk and \$100 represents the fee the antique dealer charges for her services. This year Susie also manufactures 200 widgets that sell for \$10 per widget in the local supermarket. Explain briefly the impact on GDP of these transactions and determine a dollar amount of the impact on GDP.

- 1) Shares of stock is a change in ownership \Rightarrow no production occurred \Rightarrow no impact on GDP
 - 2) \$400 of desk does not get counted since desk is an antique \Rightarrow its value was counted the year it was produced \Rightarrow \$100 in antique dealer's fee gets counted since it represents a productive service this year
 - 3) Value of widgets gets counted: $(200 \text{ widgets})(\$10/\text{widget}) = \2000
- Impact on GDP = $2000 + 100 = \$2100$

3. (2 points) For each of the following individuals decide whether they are employed, unemployed, or not in the labor force.

a. George is 22 years old and works 3 hours a week for pay at his uncle's deli. George is employed.

b. Marcy is 45 years old, is currently not working, is looking for work, but is leaving tomorrow for a two week long trip to Costa Rica. Marcy is not in labor force.
(Marcy is not available to work due to her travels)

c. Michele is 15 years old and is currently working thirty hours a week for pay as a life guard. Michele is not in labor force.
(Michele is not 16 years old)

d. Weston is 58 years old and worked for thirty years as a coal worker. For the past five years Weston has not been working, but he has been available to work, has applied for work every week and he hopes to find a job soon. Weston is unemployed.

