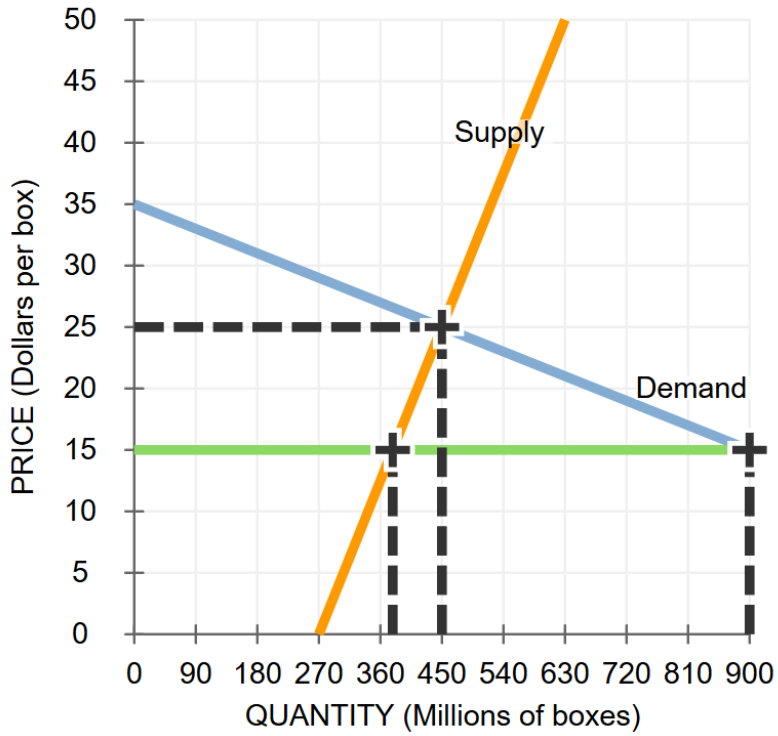
Problem 1

Part 1

The following graph shows the annual market for Florida oranges, which are sold in units of 90-pound boxes.



(a) Find the equilibrium price.

(b) Find the equilibrium quantity.

Part 2

For each of the prices listed in the following table, determine the quantity of oranges demanded, the quantity of oranges supplied, and the direction of pressure exerted on prices in the absence of any price controls.

Price *(Dollars per box)*	Quantity Demanded *(Millions of boxes)*	Quantity Supplied *(Millions of boxes)*	Pressure on Prices
15			
35			

Part 3

True or False: A price ceiling below \$25 per box is not a binding price ceiling in this market.

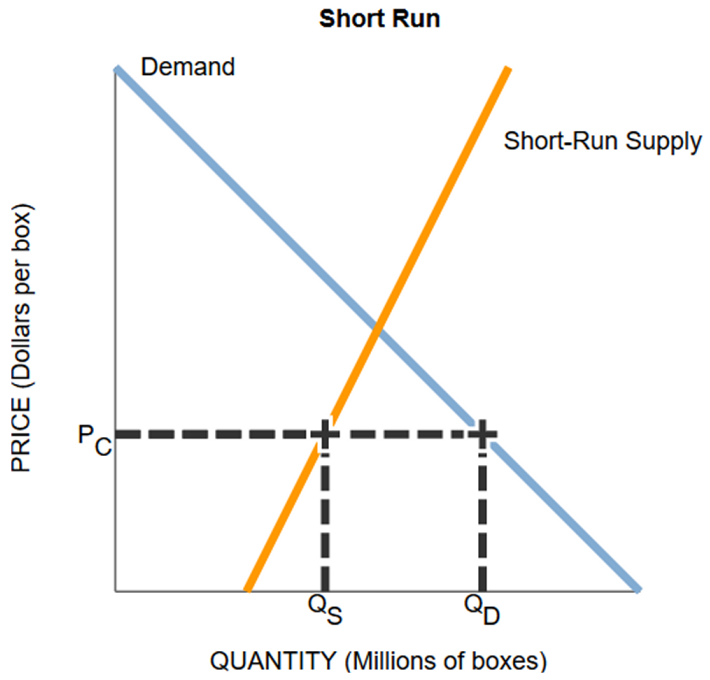
Part 4

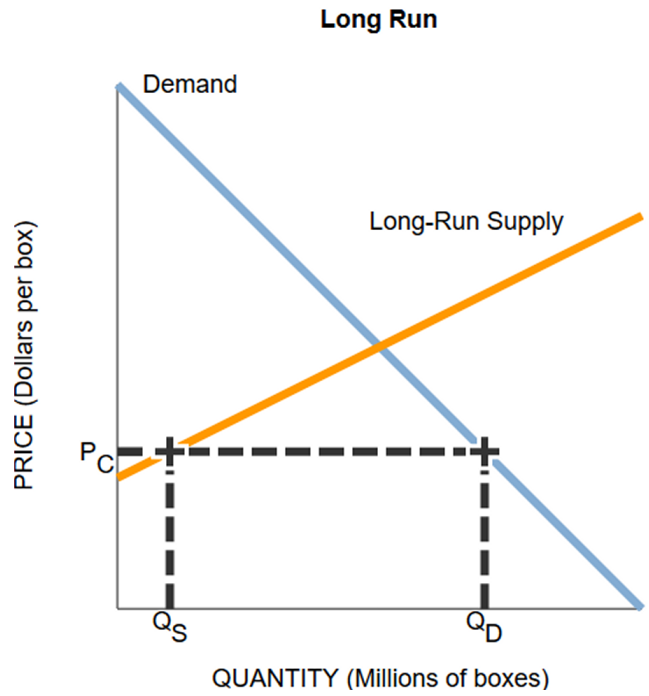
It takes many years before newly planted orange trees bear fruit, so the supply curve in the short run is almost vertical. In the long run, farmers can decide whether to plant oranges on their land, to plant something else, or to even sell their land. Therefore, the long-run supply of oranges is more price sensitive than the short-run supply.

Assuming that the long-run demand for oranges is the same as the short-run demand, you would expect a binding price ceiling to result in a *surplus/shortage* that is *larger/smaller* in the long run than in the short run.

Answers

- The equilibrium price is \$25 per box, and the equilibrium quantity of oranges is 450 million boxes.
- At a price of \$15 per box, 900 million boxes are demanded and 378 millions of boxes are supplied. The price pressure is upward.
- At a price of \$35 per box, the quantity demanded is zero and the quantity supplied is 522 millions of boxes.
- The price ceiling below \$25 per box *is* a binding price ceiling since the equilibrium price is \$25 per box. The price ceiling would prevent the market from reaching equilibrium.
- In the long run, the supply curve is flatter. Thus, the distance between quantity demanded and quantity supplied will be larger, i.e. there will be a larger shortage in the long run.

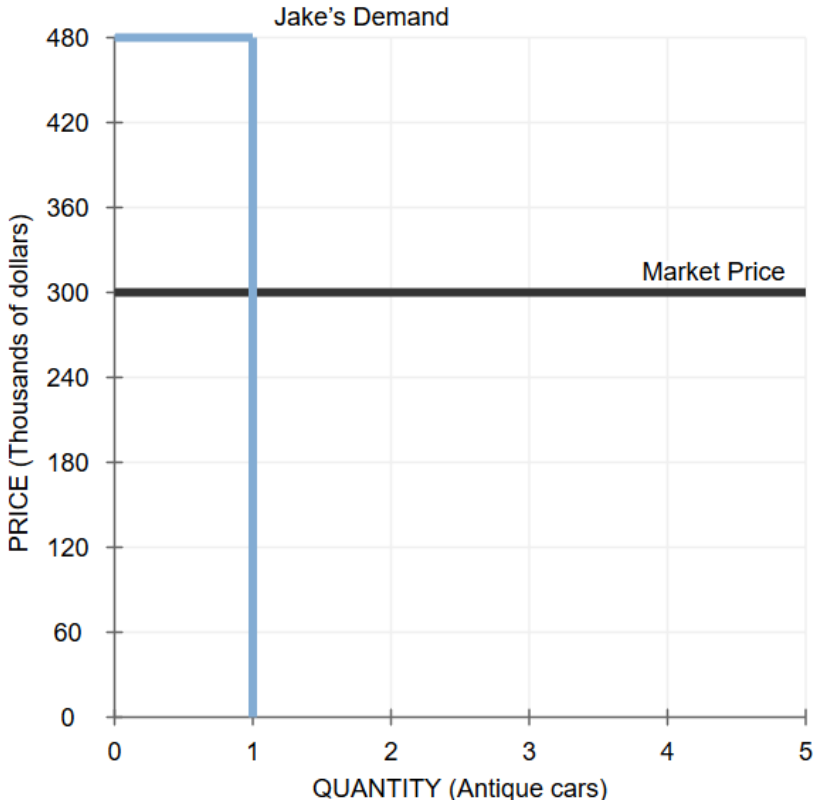




Problem 2

Part 1

Consider the market for antique cars. The market price of each antique car is $300,000, and each buyer demands no more than one antique car. Suppose that Jake is the only consumer in the antique car market. His willingness to pay for an antique car is $480,000. Based on Jake's willingness to pay, the following graph shows his demand curve for antique cars. Shade the area representing Jake's consumer surplus.



Part 2

Now, suppose another buyer, Latasha, enters the market for antique cars, and her willingness to pay is $360,000. Based on Latasha's and Jake's respective willingness to pay, plot the market demand curve. Then shade in Jake's consumer surplus and Latasha's consumer surplus.

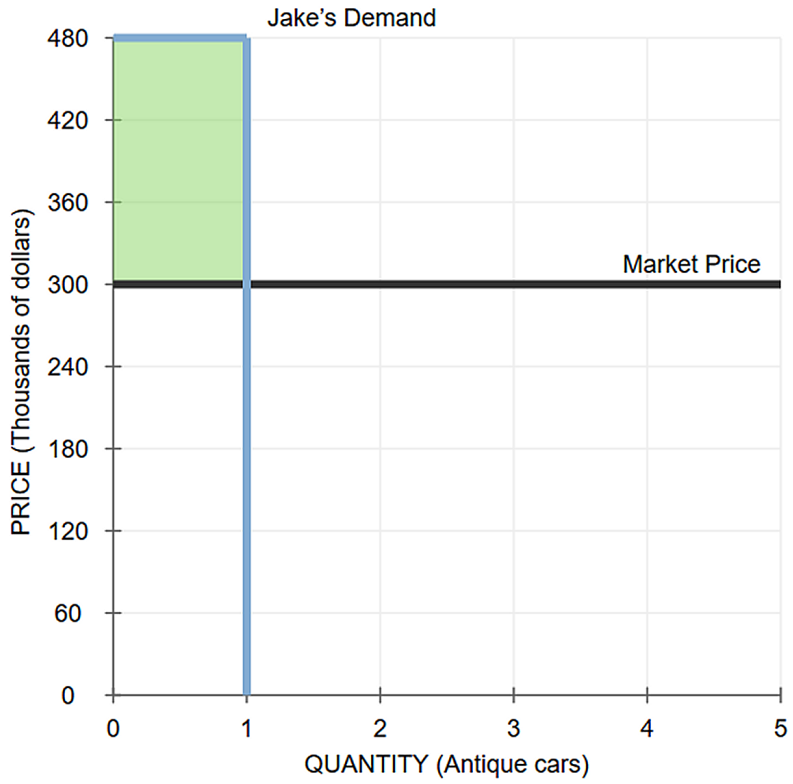
Part 3

Suppose Nick is willing to pay a total of $240,000 for an antique car. True or False: Keeping his maximum willingness to pay for an antique car in mind, Nick will not buy the antique car because it would be worth less to him than its market price of $300,000.

Answers

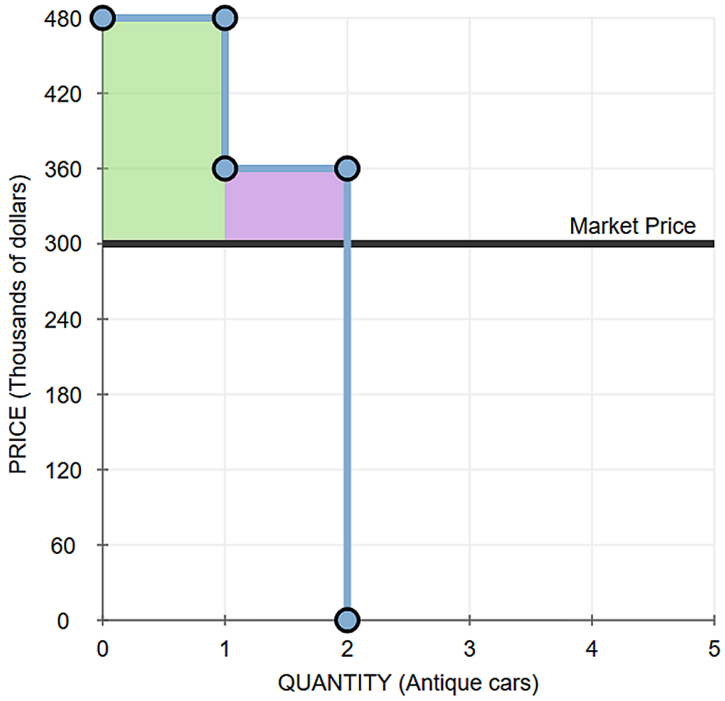
Part 1

Jake's consumer surplus is the area underneath his demand curve and above the market price.



Part 2

Jake's consumer surplus is the same as before. Now we also have Latasha's consumer surplus which is below her willingness to pay and above the market price.

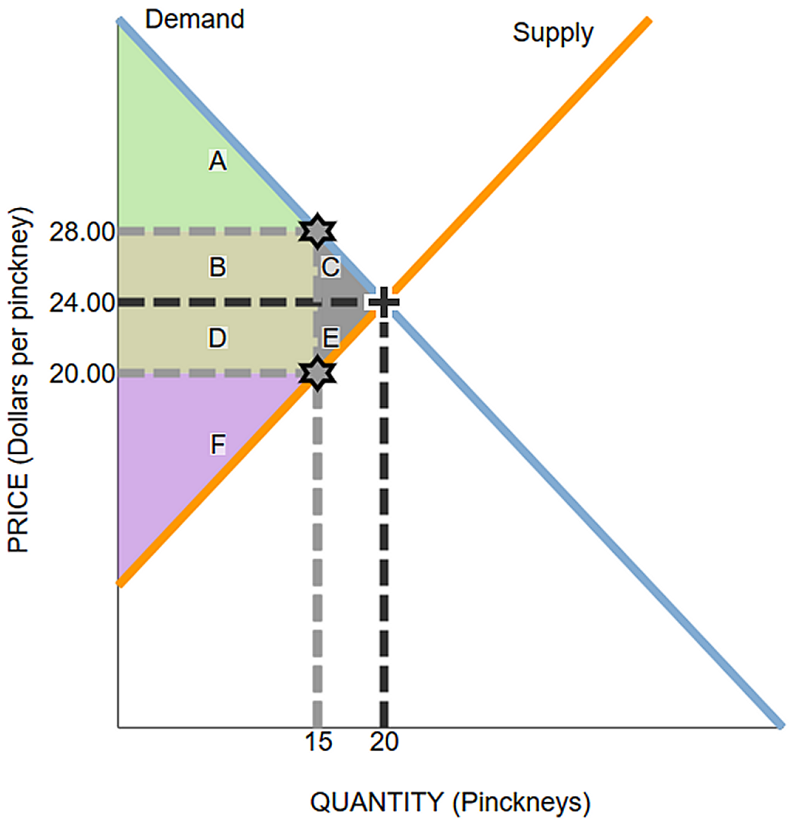


Part 3

True. He's willing to pay \$240k. It's being sold for \$300k. So he's not gonna buy it.

Problem 3

The following graph represents the demand and supply for an imaginary good called a pinckney. The black point (plus symbol) indicates the pre-tax equilibrium. Suppose the government has just decided to impose a tax on this market; the grey points (star symbol) indicate the after-tax scenario.



Part 1

Complete the following table, given the information presented on the graph.

Result	Value
Price producers receive **after** tax	$
Per-unit tax	$
Equilibrium quantity **before** tax	

Part 2

Identify the following:

- The deadweight loss after the tax is imposed.
- The consumer surplus after the tax is imposed.
- The producer surplus after the tax is imposed.

Answers

Part 1

- Producers receive \$20 per unit after tax.
- The per-unit tax is the difference between what consumers pay and producers get. In this case, it is $\$28 - \$20 = \$8$.
- The equilibrium quantity before tax is the market clearing quantity, 20.

Part 2

- Deadweight loss is the area of trade that no longer occurs with the tax. Before the tax, C was part of consumer surplus and E was part of producer surplus. With the tax, C and E are no longer part of the total surplus. Thus, C and E are the deadweight loss.
- Consumer surplus is the area underneath the demand curve and above the price consumers face. Consumer face the price of \$28, so the consumer surplus after the tax is A.
- Producer surplus is the area above the supply curve and underneath the price producers face. Producers face the price of \$20, so the producer surplus after the tax is F.