問題のタイトルと難易度（難易度は主観です）

No.	Chap.	Title	難易度
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2	4	Another supply and demand puzzle	普
3	5	Elasticity and hotel rooms	難
4	5	Demand elasticity and agriculture	難
5	6	Who should pay the tax?	普〜難
6	6	Effects of a tax on sellers and buyers	普
7	7	Consumer surplus for an individual and a market	普
8	7	Producer surplus and price changes	易
9	8	Understanding the implications of taxes on welfare	易
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Extra	5	Calculating the price elasticity of demand - A step-by-step guide	普

1. Shifts in supply or demand II （Chapter 4）

The following graph shows the market for hot dogs in New York City, where there are over 1,000 hot dog stands at any given moment. Suppose an innovation in meat processing technology makes it possible to produce more hot dogs at a lower cost than ever before.

Show the effect of this change on the market for hot dogs by shifting one or both of the curves on the following graph, holding all else constant.
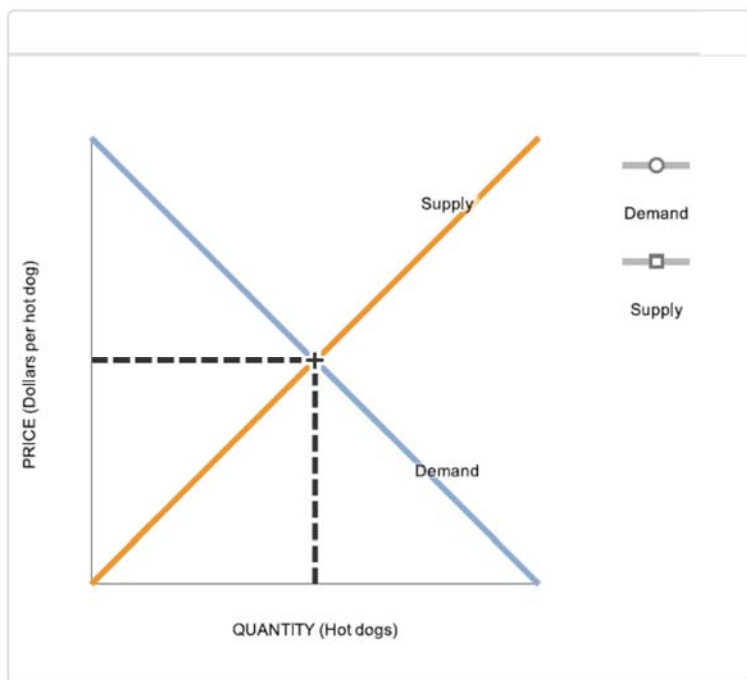
2. Another supply and demand puzzle (Chapter 4)

The market price of pizzas in a college town increased recently, and the students in an economics class are debating the cause of the price increase. Some students suggest that the price increased because the price of dough, an important ingredient for making pizzas, has increased. Other students attribute the increase in the price of pizzas to a recent increase in college student enrollment.

The first group of students thinks the increase in the price of pizzas is due to the fact that the price of dough, an important ingredient for making pizzas, has increased.

On the following graph, adjust the supply and demand curves to illustrate the first group's explanation for the increase in the price of pizzas.
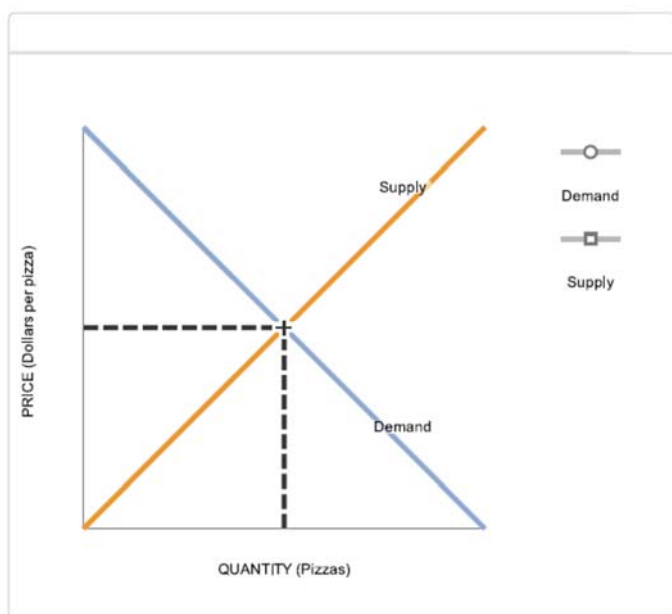
The second group of students attributes the increase in the price of pizzas to the increase in college student enrollment.

On the following graph, adjust the supply and demand curves to illustrate the second group's explanation for the increase in the price of pizzas.

PRICE (Dollars per pizza)

QUANTITY (Pizzas)

Supply

Demand

Demand

Supply
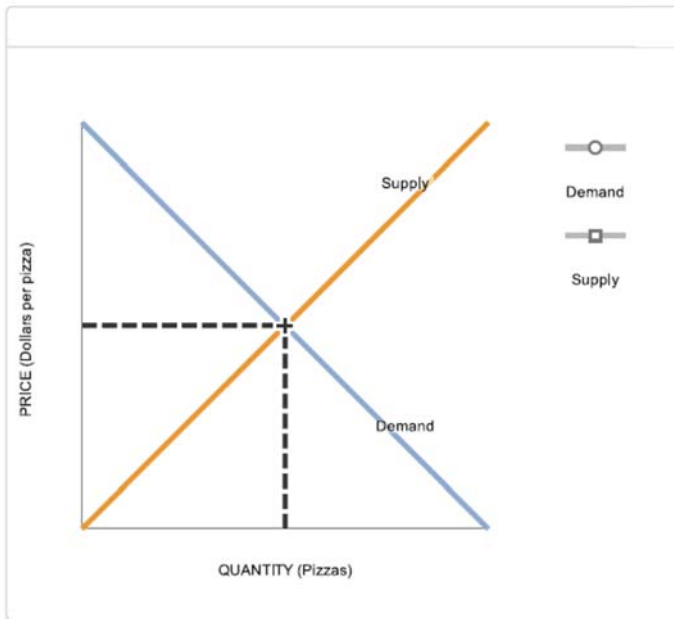
Suppose that both of the events you analyzed above are partly responsible for the increase in the price of pizzas. Based on your analysis of the explanations offered by the two groups of students, how would you figure out which of the possible causes was the dominant cause of the increase in the price of pizzas?

☐ If the price increase was large, then the supply shift in the market for pizzas must have been larger than the demand shift.

☐ Whichever change occurred first must have been the primary cause of the change in the price of pizzas.

☐ If the equilibrium quantity of pizzas decreases, then the demand shift in the market for pizzas must have been larger than the supply shift.

☐ If the equilibrium quantity of pizzas decreases, then the supply shift in the market for pizzas must have been larger than the demand shift.

3. Application: Elasticity and hotel rooms (Chapter 5)

The following graph input tool shows the daily demand for hotel rooms at the Peacock Hotel and Casino in Las Vegas, Nevada. To help the hotel management better understand the market, an economist identified three primary factors that affect the demand for rooms each night. These demand factors, along with the values corresponding to the initial demand curve, are shown in the following table and alongside the graph input tool.

Demand Factor	Initial Value
Average American household income	$50,000 per year
Roundtrip airfare from Los Angeles (LAX) to Las Vegas (LAS)	$100 per roundtrip
Room rate at the Grandiose Hotel and Casino, which is near the Peacock	$250 per night

Use the graph input tool to help you answer the following questions. You will not be graded on any changes you make to this graph.

Note: Once you enter a value in a white field, the graph and any corresponding amounts in each grey field will change accordingly.
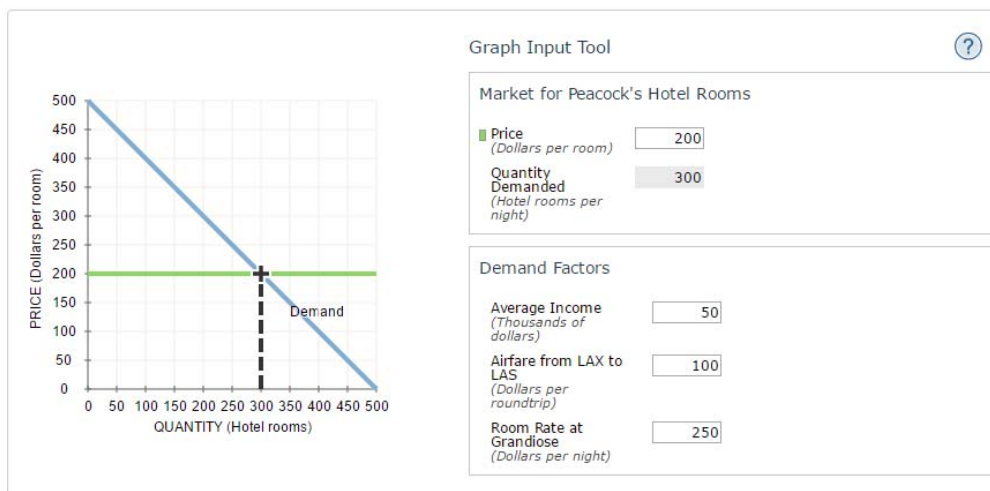
For each of the following scenarios, begin by assuming that all demand factors are set to their original values and Peacock is charging $200 per room per night.

If average household income increases by 10%, from $50,000 to $55,000 per year, the quantity of rooms demanded at the Peacock _____A_____ from ⟦300⟧ rooms per night to ⟦400⟧ rooms per night. Therefore, the income elasticity of demand is___B____ , meaning that hotel rooms at the Peacock are_____C_____ .

If the price of a room at the Grandiose were to decrease by 10%, from $250 to $225, while all other demand factors remain at their initial values, the quantity of rooms demanded at the Peacock_____

__D_____ from [300] rooms per night to [250] rooms per night. Because the cross-price elasticity of demand is_____E_____ , hotel rooms at the Peacock and hotel rooms at the Grandiose are_

__F_____ .

Peacock is debating decreasing the price of its rooms to $175 per night. Under the initial demand conditions, you can see that this would cause its total revenue to decreases. Decreasing the price will always have this effect on revenue when Peacock is operating on the____G_____ portion of its demand curve.

A/D = falls/ rises, B/E = negative/positive, C = a normal goods/ an inferior goods,

F = complements/ substitutes, G =elastic/ inelastic.

4. Application: Demand elasticity and agriculture (Chapter 5)

Consider the market for corn. The following graph shows the weekly demand for corn and the weekly supply of corn. Suppose new farming technology is developed that allows farmers to grow more crops with the same resources.

Show the effect this shock has on the market for corn by shifting the demand curve, supply curve, or both.

Note: Select and drag one or both of the curves to the desired position. Curves will snap into position, so if you try to move a curve and it snaps back to its original position, just drag it a little farther.
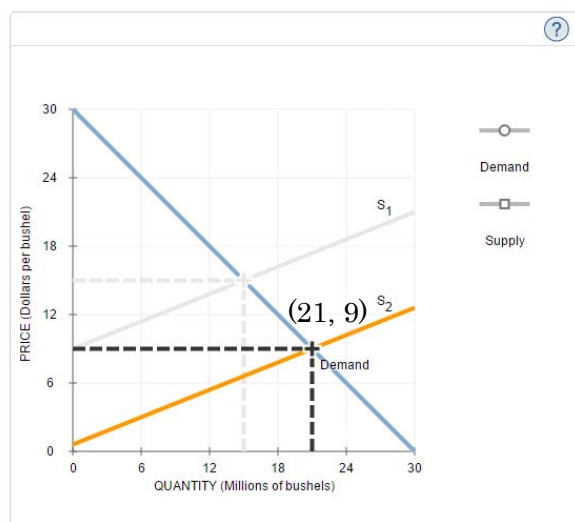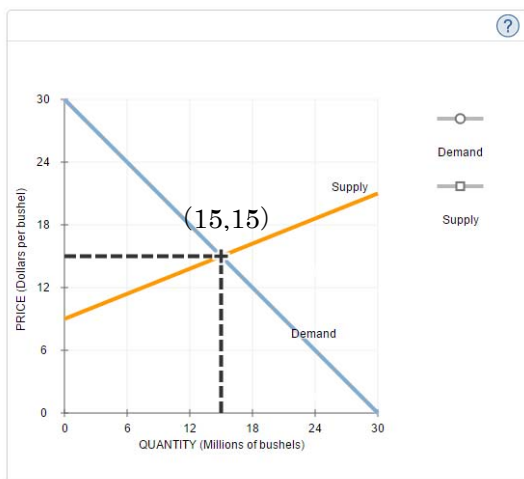
One of the farmers is excited by this advancement because now he can sell more crops, which he believes will increase revenue in this market. As an economics student, you can use elasticities to determine whether this change in price will lead to an increase or decrease in total revenue in this market.

Using the midpoint method, the price elasticity of demand for corn between the prices of $15 and $9 per bushel is_____I_____ , which means demand is_____J_____ between these two points. Therefore, you

would tell the farmer that his claim is_____K_____ because total revenue will_____L_____ as a result of the technological advancement.

I = 0.67/0.75/ 1.5/ 3, J = elastic/ inelastic/ unit elastic,

K =correct/ incorrect, L = decrease/ increase.

Confirm your previous conclusion by calculating total revenue in the corn market before and after the technological advancement. Enter these values in the following table.

|	**Before Technological Advancement**	**After Technological Advancement**
Total Revenue (Millions of Dollars)		

5. Who should pay the tax? (Chapter 6)

The following graph shows the labor market for research assistants in the fictional country of Collegia. The equilibrium wage is $10 per hour, and the equilibrium number of research assistants is 100.
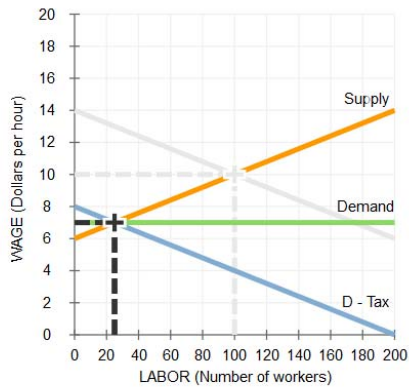
Suppose the government has decided to institute a $6-per-hour payroll tax on research assistants and is trying to determine whether the tax should be levied on the employer, the workers, or both (such that each pays half the tax).

Use the graph input tool to evaluate these three proposals. Entering a number into the Tax Paid by Employers field (initially set at zero dollars per hour) shifts the demand curve down by the amount you enter, and entering a number into the Tax Paid by Workers field (initially set at zero dollars per hour) shifts the supply curve up by the amount you enter. You will not be graded on any changes you make to this graph.

Note: Once you enter a value in a white field, the graph and any corresponding amounts in each grey field will change accordingly.
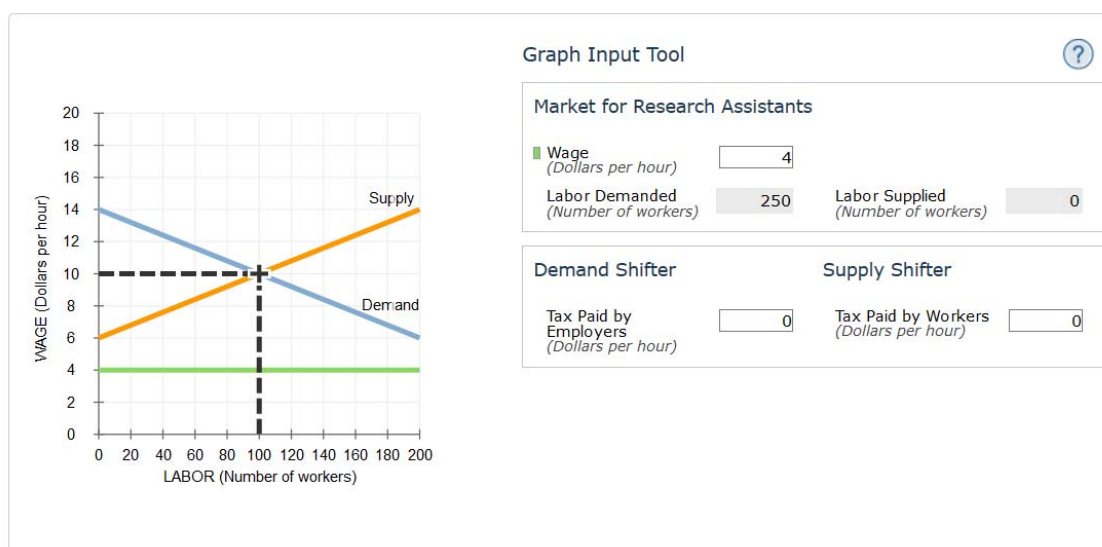
For each of the proposals, use the previous graph to determine the new equilibrium wage and number of research assistants hired. Then compute the after-tax amount paid by employers (that is, the equilibrium wage plus any taxes the employer pays) and the after-tax amount earned by research assistants (that is, the equilibrium wage minus any taxes the worker pays).

Graph Input Tool

Market for Research Assistants

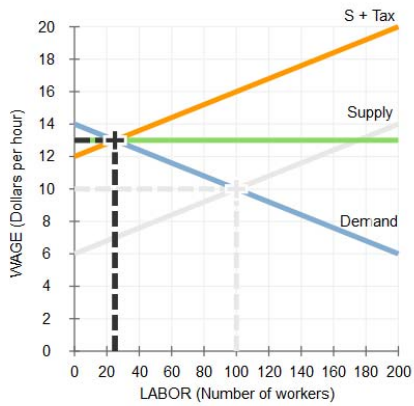Wage (Dollars per hour): 7
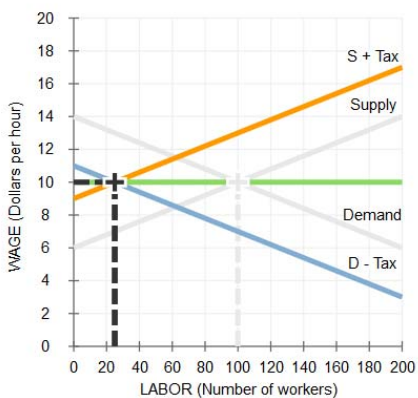
Labor Demanded (Number of workers): 25

Labor Supplied (Number of workers): 25

Demand Shifter

Tax Paid by Employers (Dollars per hour): 6

Supply Shifter

Tax Paid by Workers (Dollars per hour): 0

Graph Input Tool

Market for Research Assistants

Wage (Dollars per hour): 13

Labor Demanded (Number of workers): 25

Labor Supplied (Number of workers): 25

Demand Shifter

Tax Paid by Employers (Dollars per hour): 0

Supply Shifter

Tax Paid by Workers (Dollars per hour): 6

Graph Input Tool

Market for Research Assistants

Wage (Dollars per hour): 10

Labor Demanded (Number of workers): 25

Labor Supplied (Number of workers): 25

Demand Shifter

Tax Paid by Employers (Dollars per hour): 3

Supply Shifter

Tax Paid by Workers (Dollars per hour): 3

Tax Proposal		Wage	Quantity Hired	Wage + Employers's Taxes	Wage – Workers's Taxes
Employers Pay... (Dollars per hour)	Workers Pay... (Dollars per hour)	(Dollars per hour)	(Number of workers)	(Dollars per hour)	(Dollars per hour)
6	0				
0	6				
3	3				

Suppose the government doesn't want to discourage employers from hiring research assistants and, therefore, wants to minimize the share of the tax paid by the employers. Of the three tax proposals, which is best for accomplishing this goal?

☐ The proposal in which workers pay the entire tax

☐ The proposal in which each side pays half the tax

☐ The proposal in which employers pay the entire tax

☐ None of the proposals is better than the others

6. Effect of a tax on buyers and sellers (Chapter 6)

The following graph shows the daily market for shoes when the tax on sellers set at $0 per pair. Suppose the government institutes a tax of $11.60 per pair, to be paid by the seller. (Hint: To see the impact of the tax, enter the value of the tax in the Tax on Sellers field and move the green line to the after-tax equilibrium by adjusting the value in the Quantity field. Then enter zero in the Tax on Sellers field. You should see a tax wedge between the price buyers pay and the price sellers receive.)

Use the graph input tool to help you answer the following questions. You will not be graded on any changes you make to this graph.

Note: Once you enter a value in a white field, the graph and any corresponding amounts in each grey field will change accordingly.
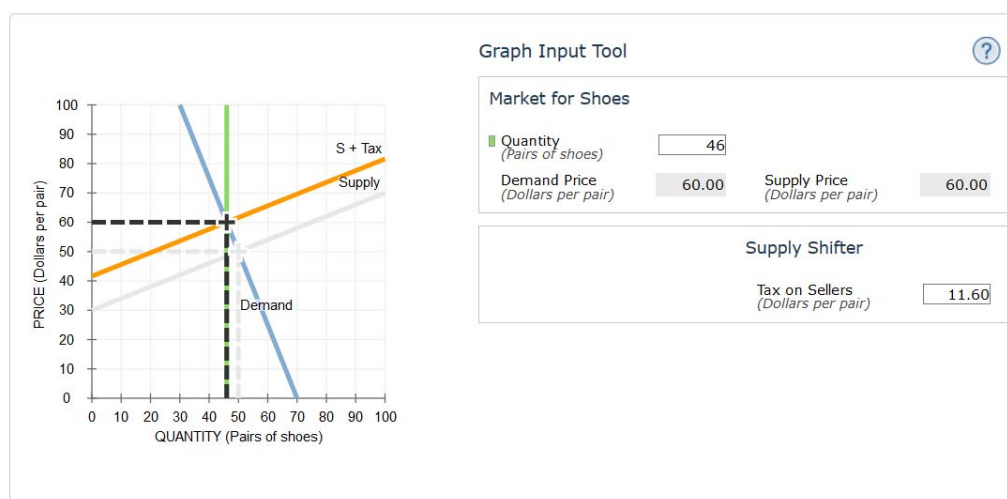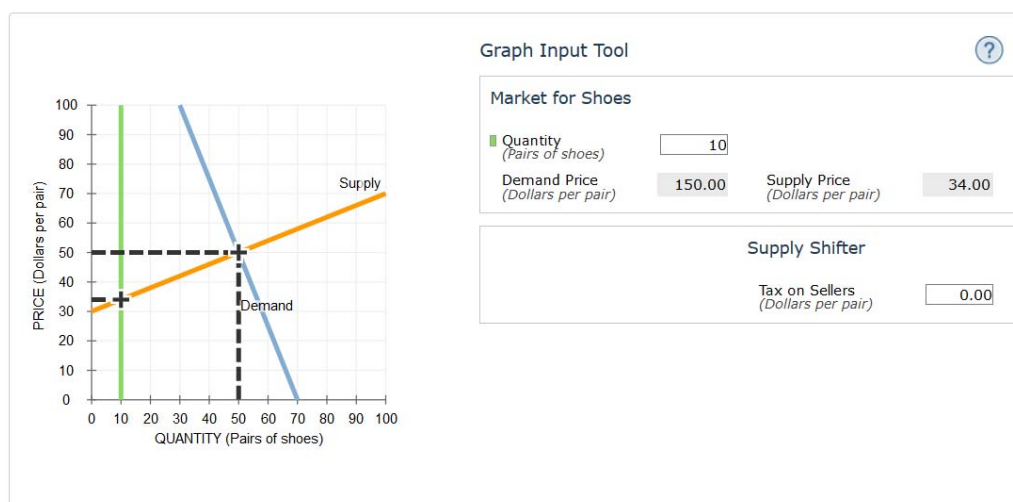
Fill in the following table with the quantity sold, the price buyers pay, and the price sellers receive before and after the tax.

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	Quantity (Pairs of shoes)	Price Buyers Pay (Dollars per pair)	Price Sellers Receive (Dollars per pair)
Before Tax			
After Tax			

Using the data you entered in the previous table, calculate the tax burden that falls on buyers and sellers, respectively, and calculate the price elasticity of demand and supply over the relevant ranges using the midpoint method. Enter your results in the following table.

	Tax Burden (Dollars per pair)	Elasticity
Buyers		A
Sellers		B

The burden of the tax falls more heavily on the____C_____ elastic side of the market.

A = 0.46/ 2.56/ 2.18/ 0.92

B = 1.28/ 0.39/ 0.46/ 2.56

C = less/ more

7. Consumer surplus for an individual and a market (Chapter 7)

The following graph shows Janet's weekly demand for cheesecake, represented by the blue line. Point A represents a point along her weekly demand. The market price of cheesecake is $3.00 per slice, as shown by the horizontal black line.
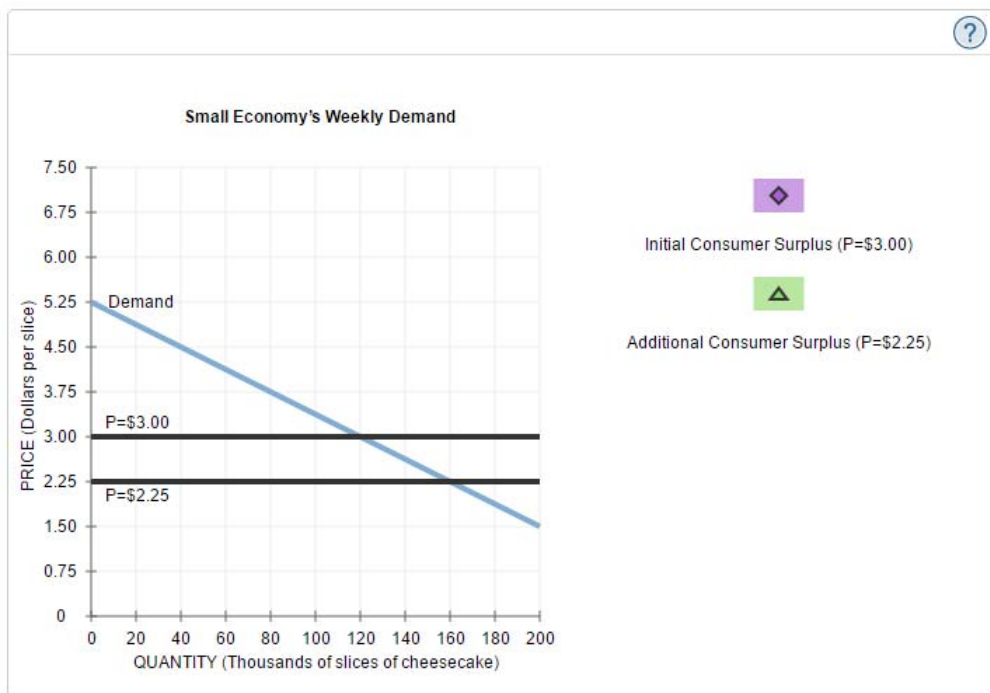

Janet's Weekly Demand
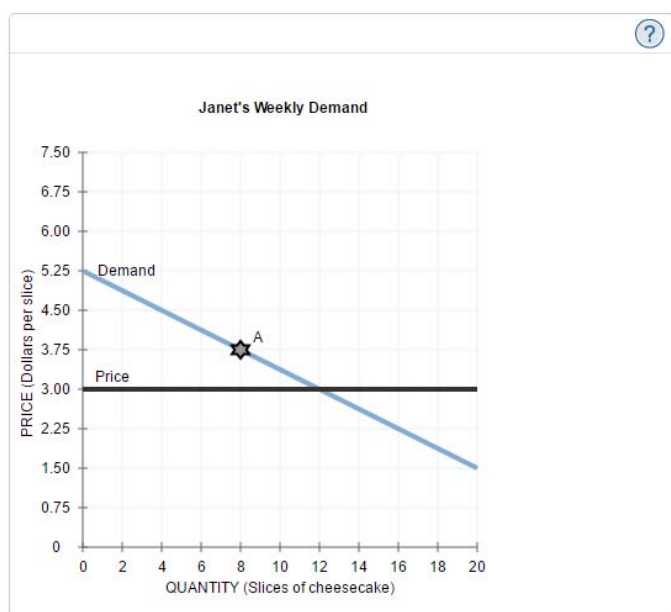
From the previous graph, you can tell that Janet is willing to pay _____ for her 8th slice of cheesecake each week. Since she has to pay only $3.00 per slice, the consumer surplus she gains from the 8th slice of cheesecake is _____ .

Suppose the price of cheesecake were to fall to $2.25 per slice. At this lower price, Janet would receive a consumer surplus of _____ from the 8th slice of cheesecake she buys.

The following graph shows the weekly market demand for cheesecake in a small economy.

*Use the purple point (diamond symbol) to shade the area representing consumer surplus when the price (P) of cheesecake is $3.00 per slice. Then, use the green point (triangle symbol) to shade the area representing **additional** consumer surplus when the price falls to $2.25 per slice.*

Small Economy's Weekly Demand

PRICE (Dollars per slice)

QUANTITY (Thousands of slices of cheesecake)

◇ Initial Consumer Surplus (P=$3.00)

△ Additional Consumer Surplus (P=$2.25)

8. Producer surplus and price changes (Chapter 7)

The following graph shows the supply curve for a group of students looking to sell used DVD players. Each student has only one used DVD player to sell. Each rectangular segment under the supply curve represents the "cost," or minimum acceptable price, for one student. Assume that anyone who has a cost just equal to the market price is willing to sell his or her used DVD player.
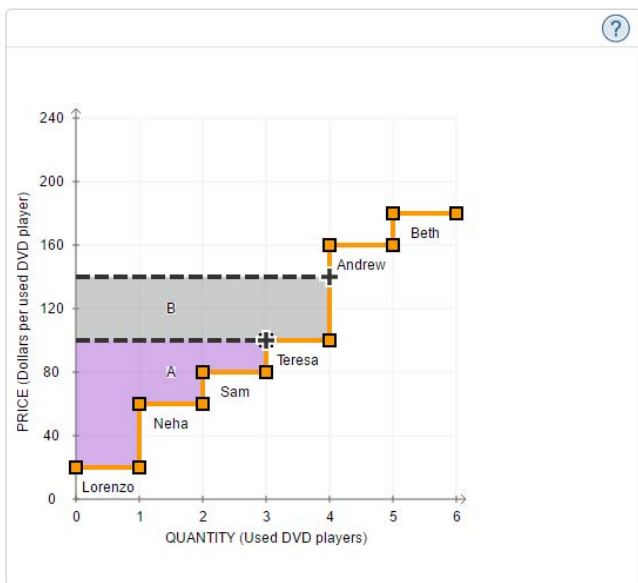
Region A (the purple shaded area) represents the total producer surplus when the market price is

_____ , while Region B (the grey shaded area) represents___E___ when the market price ____

F____.

E = the change in total producer surplus/ the total producer surplus,

F = changes from $100 to $140/ is $100/ changes from

Complete the following table by indicating which statements are true or false based on the information provided on the previous graph.

Statement	True	False
Assuming each student receives a positive surplus, Sam will always receive less producer surplus than Teresa.	⊙	⊙
Producer surplus is smaller when the price is $140 versus when it is $100.	⊙	⊙

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Statement	True	False
There are more people selling used DVD players when the market price is $140 than when it is $100.	⬤	⬤

In order for Beth to earn a producer surplus of exactly $60 from selling a used DVD player, the market price needs to be [   ].

9. Understanding the implications of taxes on welfare (Chapter 8)

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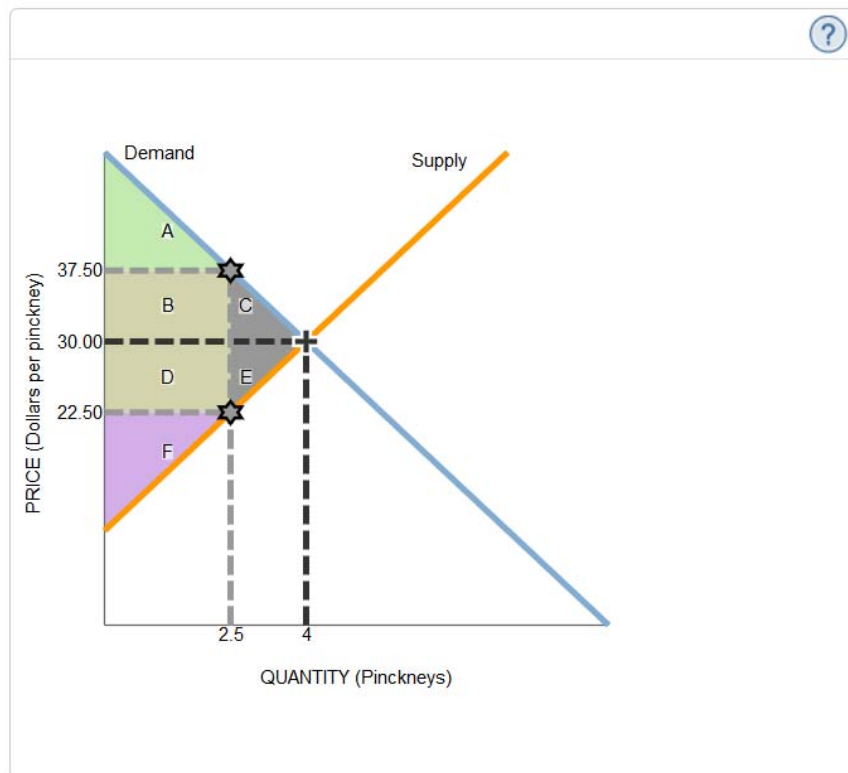
Complete the following table, given the information presented on the graph.

Result	Value
Equilibrium quantity before tax	
Per-unit tax	
Price consumers pay after tax	

In the following table, indicate which of the previous graph's areas corresponds to each concept. Check all that apply.

Concept	A	B	C	D	E	F
Consumer surplus after the tax is imposed	☐	☐	☐	☐	☐	☐
Deadweight loss after the tax is imposed	☐	☐	☐	☐	☐	☐
Producer surplus after the tax is imposed	☐	☐	☐	☐	☐	☐

10. Relationship between tax revenues, deadweight loss, and demand elasticity (Chapter 8)

The government is considering levying a tax of $80 per unit on suppliers of either leather jackets or smartphones. The supply curve for each of these two goods is identical, as you can see on each of the following graphs. The demand for leather jackets is shown by DL (on the first graph), and the demand for smartphones is shown by DS (on the second graph).
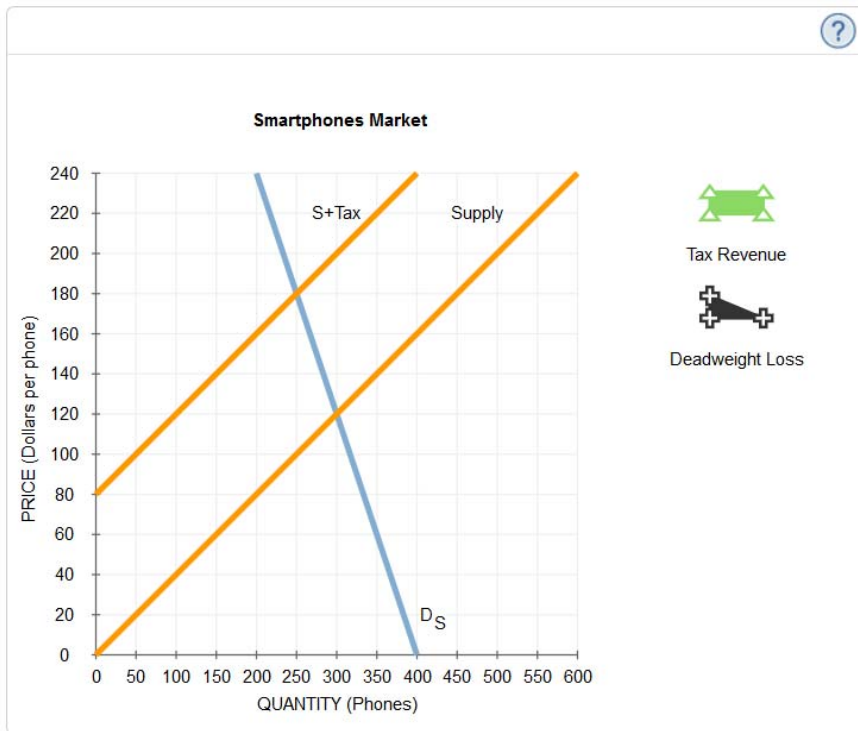
Suppose the government taxes leather jackets. The following graph shows the annual supply and demand for this good. It also shows the supply curve (S + Tax) shifted up by the amount of the proposed tax ($80 per jacket).

On the following graph, use the green rectangle (triangle symbols) to shade the area that represents tax revenue for leather jackets. Then use the black triangle (plus symbols) to shade the area that represents the deadweight loss associated with the tax.
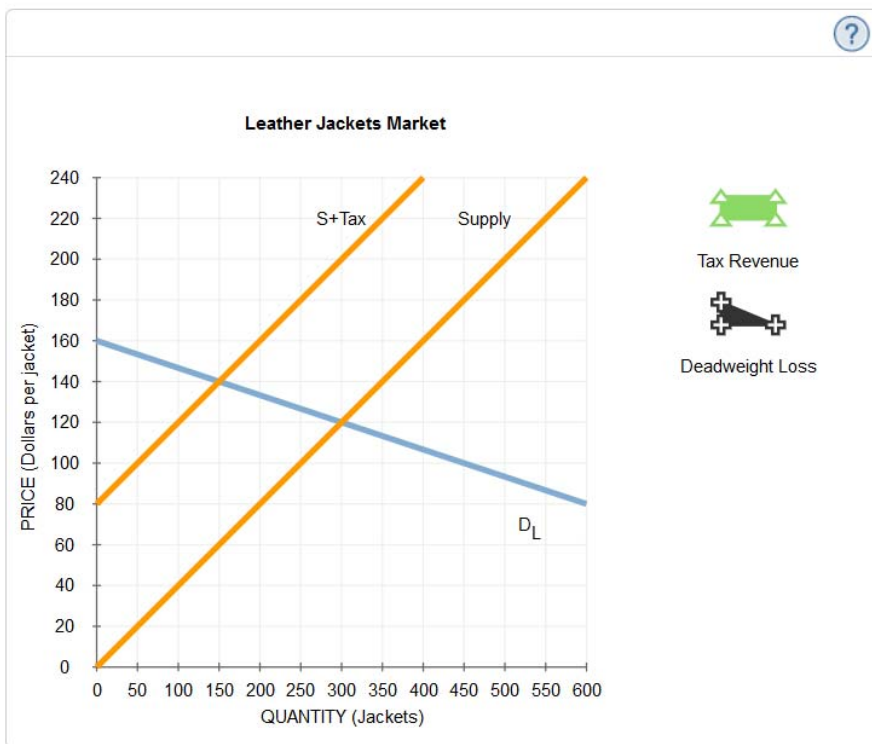
Instead, suppose the government taxes smartphones. The following graph shows the annual supply and demand for this good, as well as the supply curve shifted up by the amount of the proposed tax ($80 per phone).

On the following graph, do the same thing that you did on the graph for leather jackets. Use the green rectangle (triangle symbols) to shade the area that represents tax revenue for smartphones. Then, use the black triangle (plus symbols) to shade the area that represents the deadweight loss associated with the tax.

Smartphones Market

Complete the following table with the tax revenue collected and deadweight loss caused by each of the tax proposals.

If the Government Taxes...	Tax Revenue (Dollars)	Deadweight Loss (Dollars)
Leather jackets at $80 per jacket		
Smartphones at $80 per phone		

Suppose the government wants to tax the good that will generate more tax revenue at a lower welfare cost. In this case, it should tax _____A_____ because, all else held constant, taxing a good with a relatively_ B_____ elastic demand generates larger tax revenue and smaller deadweight loss.

A = leather jackets/ smartphones

B = less/ more

Extra: Calculating the price elasticity of demand - A step-by-step guide (Chapter 5)

Suppose that during the past year, the price of a laptop computer fell from $2,500 to $2,300. During the same time period, consumer sales increased from 403,000 to 549,000 laptops.

*Calculate the elasticity of demand between these two price–quantity combinations by using the following steps. After each step, complete the relevant part of the table with the appropriate answers. (**Note**: For decreases in price or quantity, enter values in the Change column with a minus sign.)*

	Original	New	Average	Change	Percentage Change
Quantity					C
Price					D

C = 30.67%/ 326.03%/ 15.34%

D = -1200 %/ -4.17%/ -8.33%

Step 1: Fill in the appropriate values for original quantity, new quantity, original price, and new price.

Step 2: Calculate the average quantity by adding the original quantity and the new quantity, and then dividing by two. Do the same for the average price.

Step 3: Calculate the change in quantity by subtracting the original quantity from the new quantity. Do the same for the change in price.

Step 4: Calculate the percentage change in quantity demanded by dividing the change in quantity by the average quantity. Do the same to calculate the percentage change in price.

Step 5: Calculate the price elasticity of demand by dividing the percentage change in quantity demanded by the percentage change in price, ignoring the negative sign.

Using the midpoint method, the elasticity of demand for laptops is about_____E_____ .

E = 0.27/ 1.84/ 3.68/ 7.35