Pinciples of

Microeconomics

Sixth Edition

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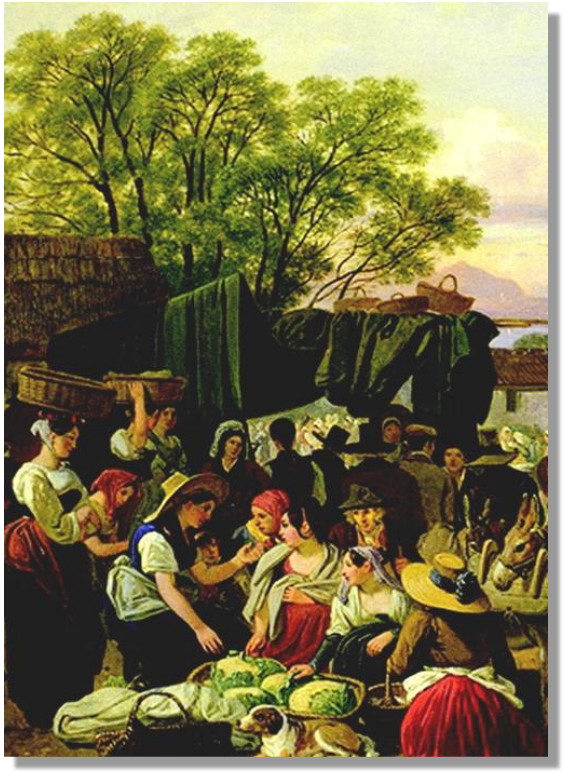


Chapter : **Consumers, Producers, and the Efficiency of Markets**

In this chapter, look for the answers to these questions:

- What is consumer surplus? How is it related to the demand curve?
- What is producer surplus? How is it related to the supply curve?
- Do markets produce a desirable allocation of resources? Or could the market outcome be improved upon?

Willingness to Pay (WTP)

A buyer's **willingness to pay** for a good is the maximum amount the buyer will pay for that good.

WTP measures how much the buyer values the good.

name	WTP
Anthony	$250
Chad	175
Flea	300
John	125

Example:

4 buyers' WTP

for an iPod

WTP and the Demand Curve

Q: If price of iPod is $200, who will buy an iPod, and what is quantity demanded?

name	WTP
Anthony	$250
Chad	175
Flea	300
John	125

A: Anthony & Flea will buy an iPod, Chad & John will not.

Hence, $Q^d = 2$
when $P = \$200$.

WTP and the Demand Curve

Derive the demand schedule:

name	WTP
Anthony	$250
Chad	175
Flea	300
John	125

P (price of iPod)	who buys	Q^d
$301 & up	nobody	0
251 – 300	Flea	1
176 – 250	Anthony, Flea	2
126 – 175	Chad, Anthony, Flea	3
0 – 125	John, Chad, Anthony, Flea	4

Consumer Surplus (CS)

Consumer surplus is the amount a buyer is willing to pay minus the buyer actually pays:

$$CS = WTP - P$$

name	WTP
Anthony	$250
Chad	175
Flea	300
John	125

Suppose P = $260.

Flea's CS = $300 – 260 = $40.

The others get no CS because they do not buy an iPod at this price.

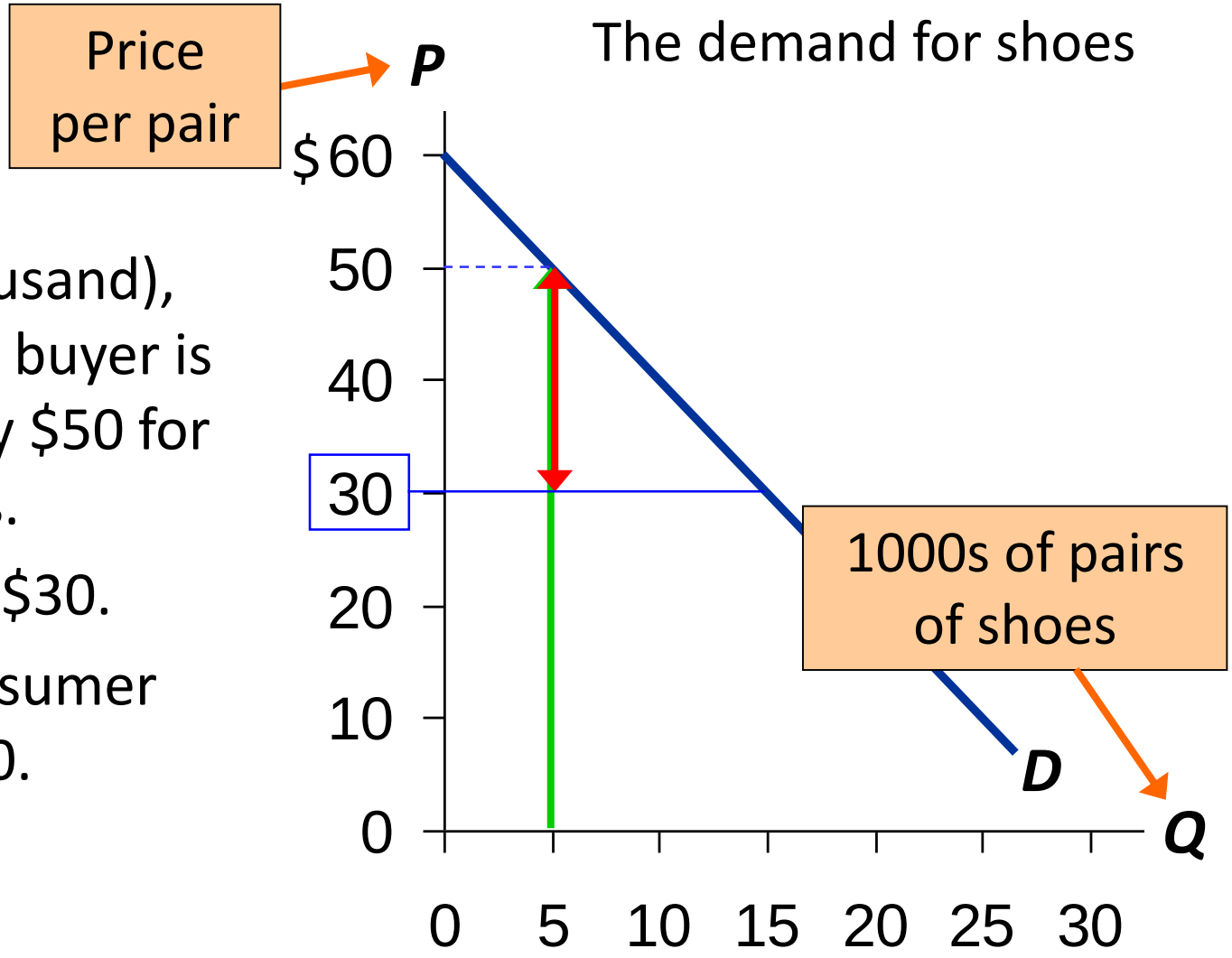
Total CS = $40.

CS with Lots of Buyers & a Smooth D Curve

At ***Q*** = 5(thousand), the marginal buyer is willing to pay $50 for pair of shoes.

Suppose ***P*** = $30.

Then his consumer surplus = $20.



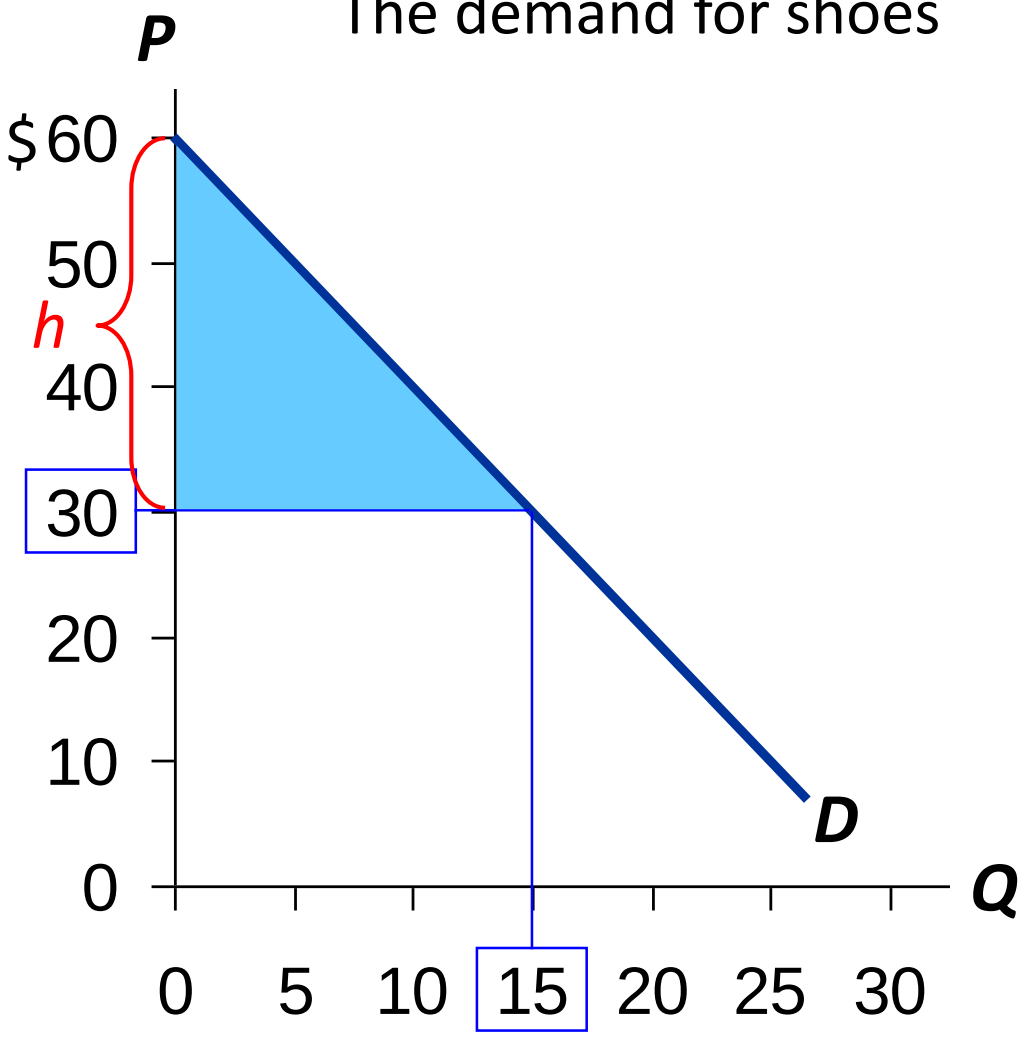
CS with Lots of Buyers & a Smooth D Curve

CS is the area b/w ***P*** and the ***D*** curve, from 0 to ***Q***.

Recall: area of a triangle equals ½ x base x height

Height of this triangle is $60 – 30 = $30.

So,
CS = ½ x 15 x $30
= $225.

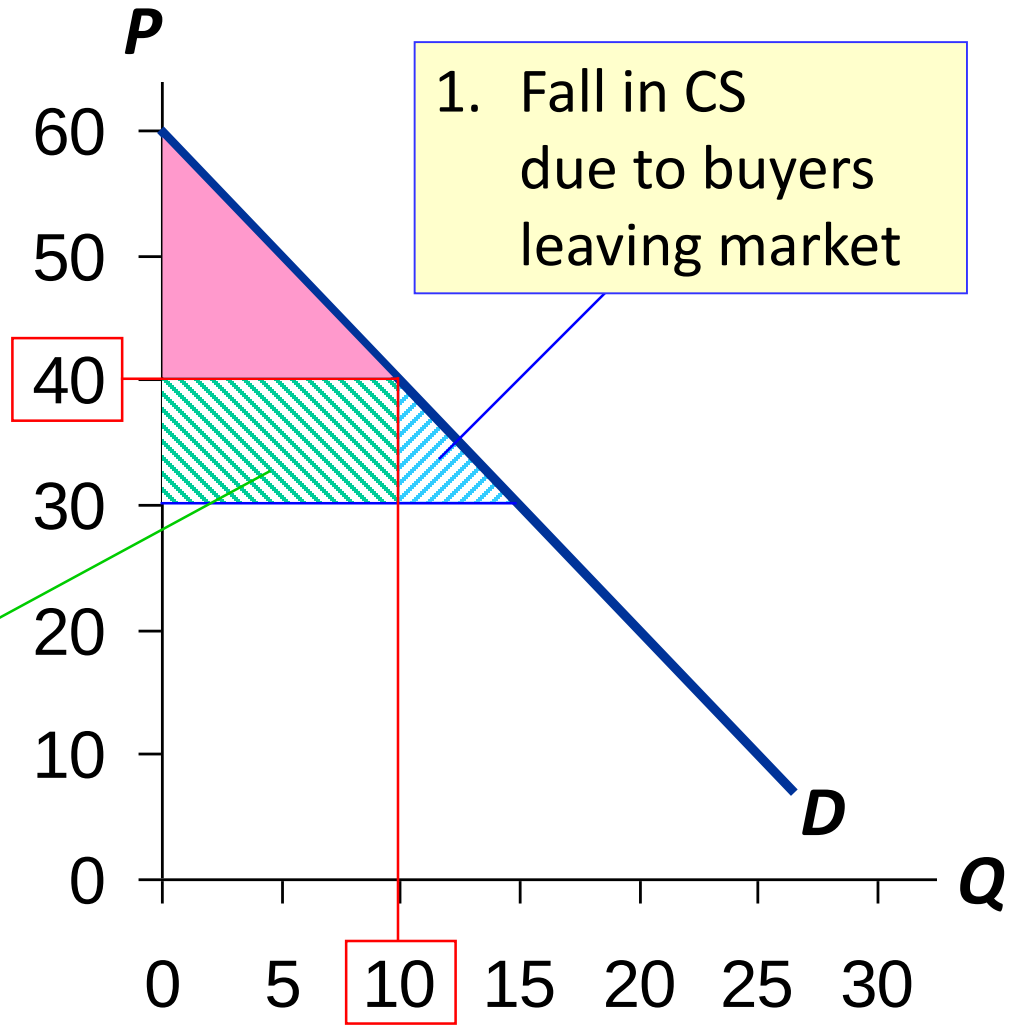


How a Higher Price Reduces CS

If ***P*** rises to \$40,

CS = ½ x 10 x \$20
= \$100.

Two reasons for the fall in CS.



ACTIVE LEARNING 1:
Consumer surplus

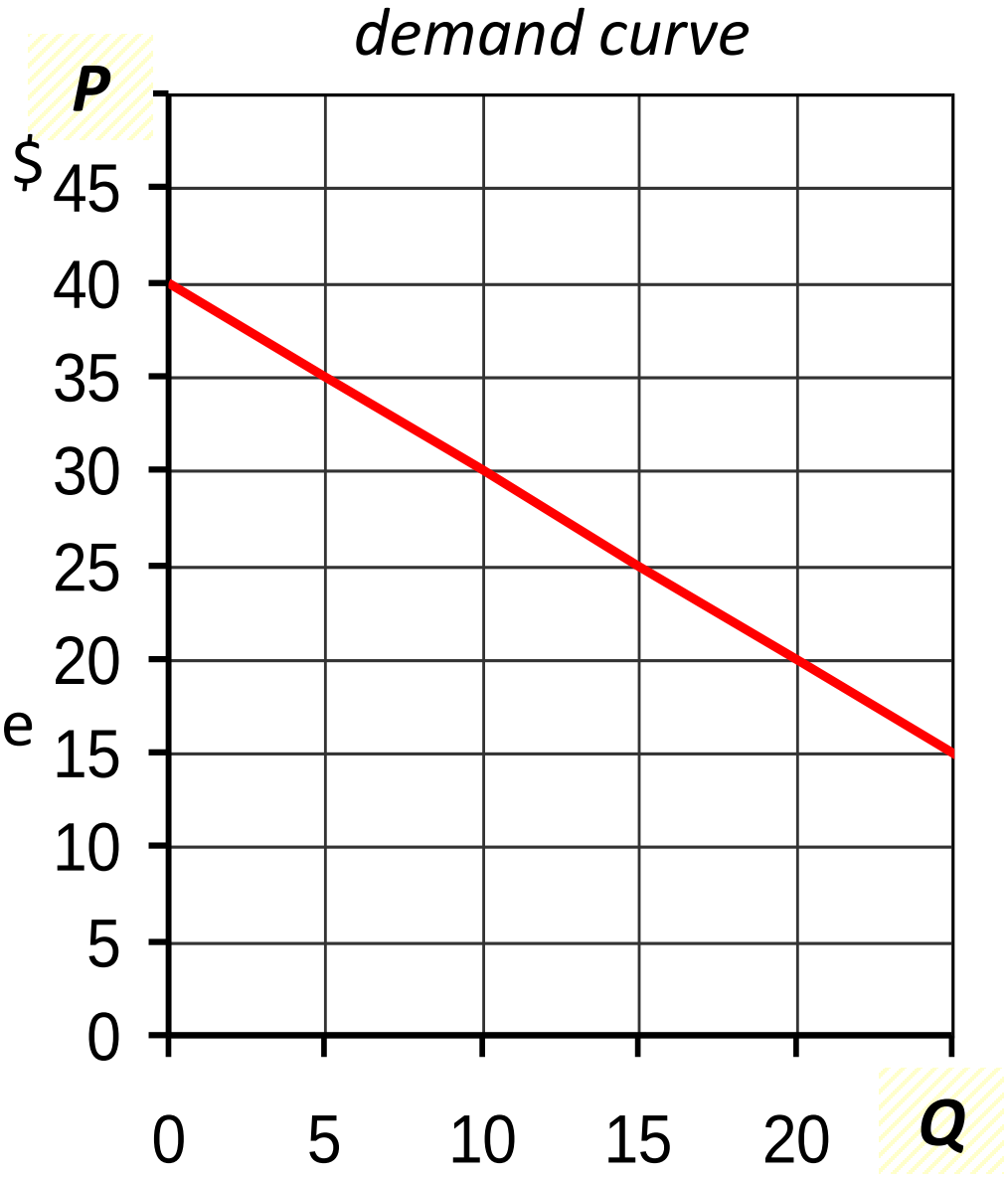
A. Find marginal buyer's WTP at ***Q*** = 10.

B. Find CS for ***P*** = $30.

Suppose ***P*** falls to $20. How much will CS increase due to…

C. buyers entering the market

D. existing buyers paying lower price



ACTIVE LEARNING 1:
Answers

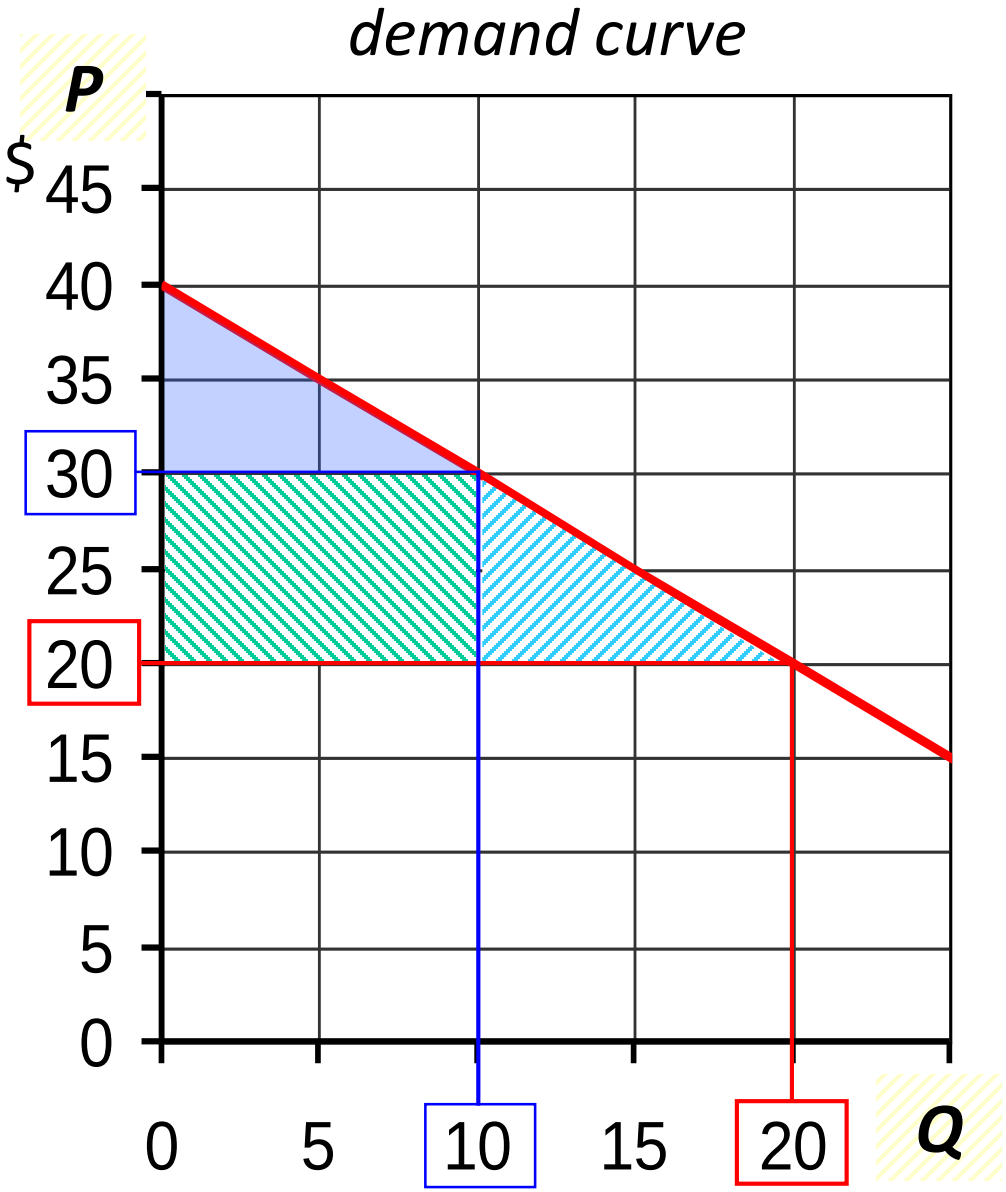
A. At ***Q*** = 10, marginal buyer's WTP is $30.

B. CS = ½ x 10 x $10 = $50

P falls to $20.

C. CS for the additional buyers = ½ x 10 x $10 = $50

D. Increase in CS on initial 10 units = 10 x $10 = $100



Cost and the Supply Curve

- **Cost** is the value of everything a seller must give up to produce a good (*i.e.*, opportunity cost).
- Includes cost of all resources used to produce good, including value of the seller's time.
- Example: Costs of 3 sellers in the lawn-cutting business.

name	cost
Angelo	$10
Hunter	20
Kitty	35

A seller will only produce and sell the good if the price exceeds his or her cost.

Hence, cost is a measure of willingness to sell.

Cost and the Supply Curve

Derive the supply schedule from the cost data:

name	cost
Angelo	$10
Hunter	20
Kitty	35

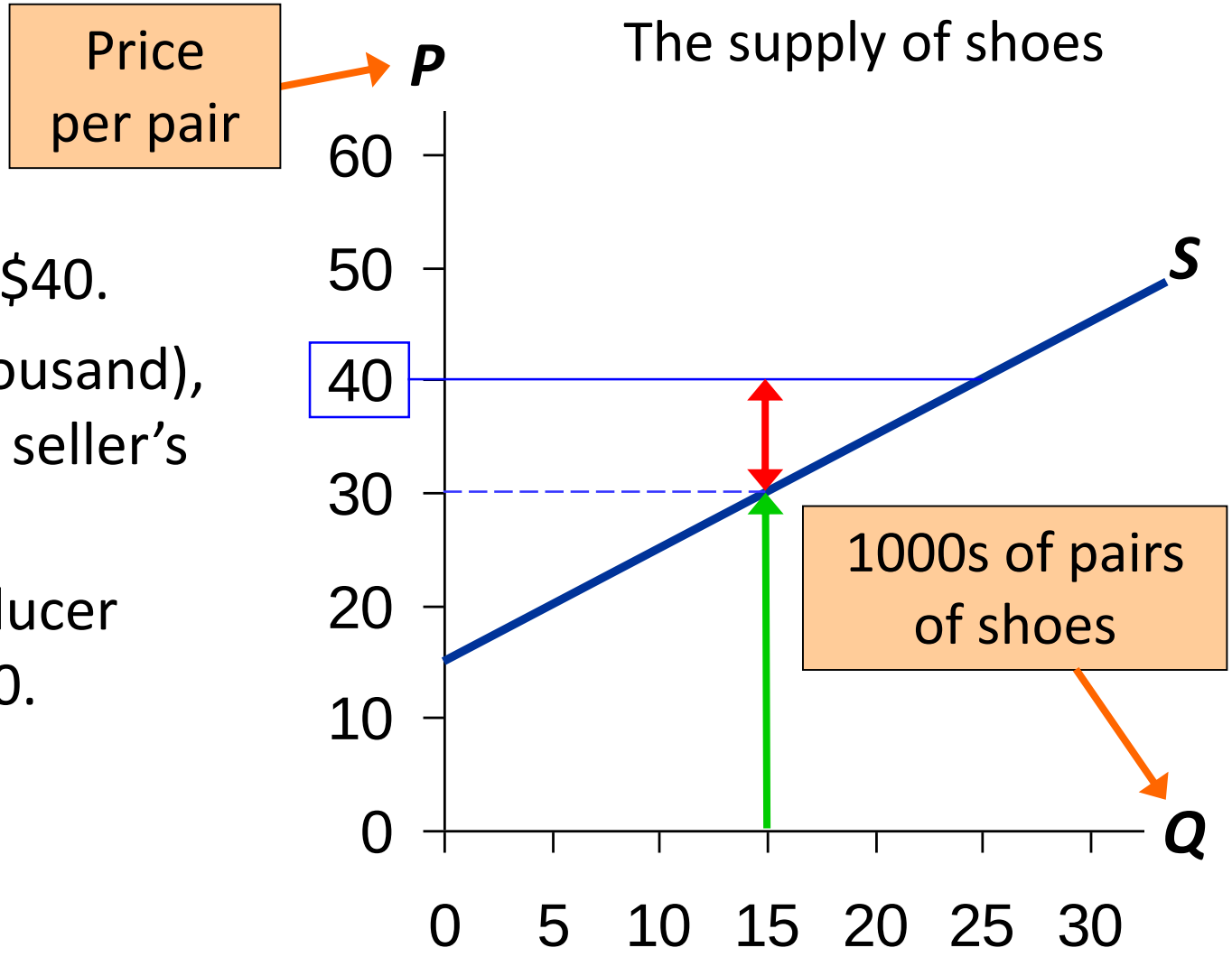
P	Q^s
$0 – 9	0
10 – 19	1
20 – 34	2
35 & up	3

PS with Lots of Sellers & a Smooth S Curve

Suppose ***P*** = $40.

At ***Q*** = 15(thousand), the marginal seller's cost is $30,

and her producer surplus is $10.



PS with Lots of Sellers & a Smooth S Curve

PS is the area b/w ***P*** and the ***S*** curve, from 0 to ***Q***.

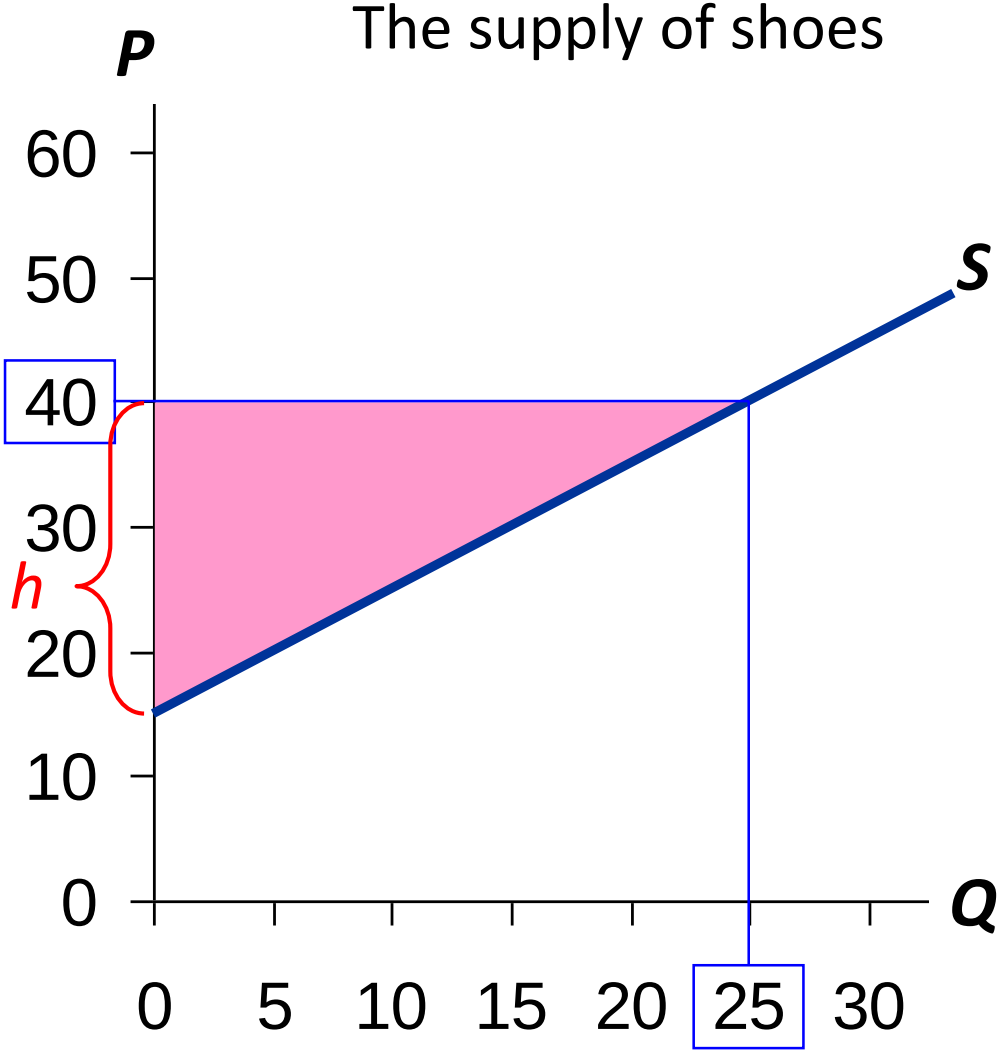
The height of this triangle is $40 – 15 = $25.

So,

PS = ½ x *b* x *h*

= ½ x 25 x $25

= $312.5



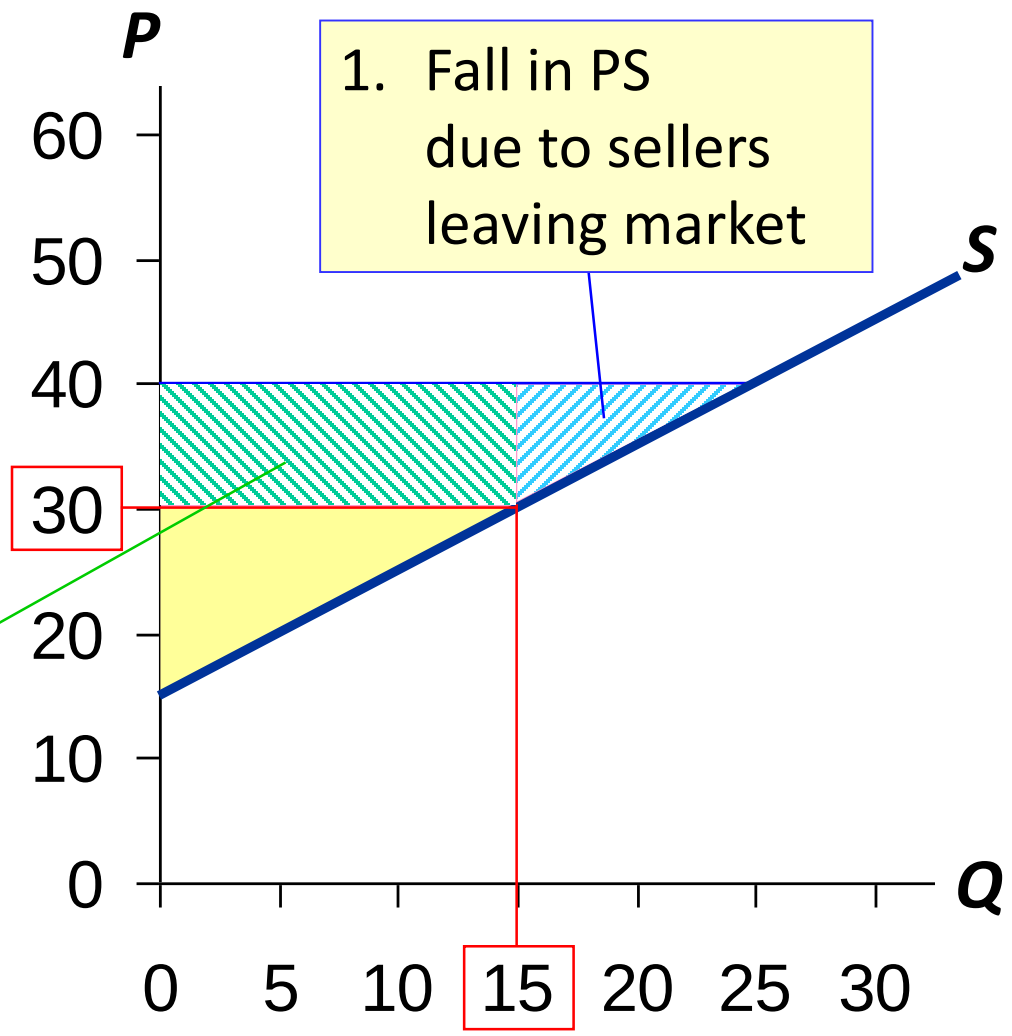
How a Lower Price Reduces PS

If ***P*** falls to $30,

PS = ½ x 15 x $15

= $112.5

Two reasons for the fall in PS.



ACTIVE LEARNING 2:
Producer Surplus

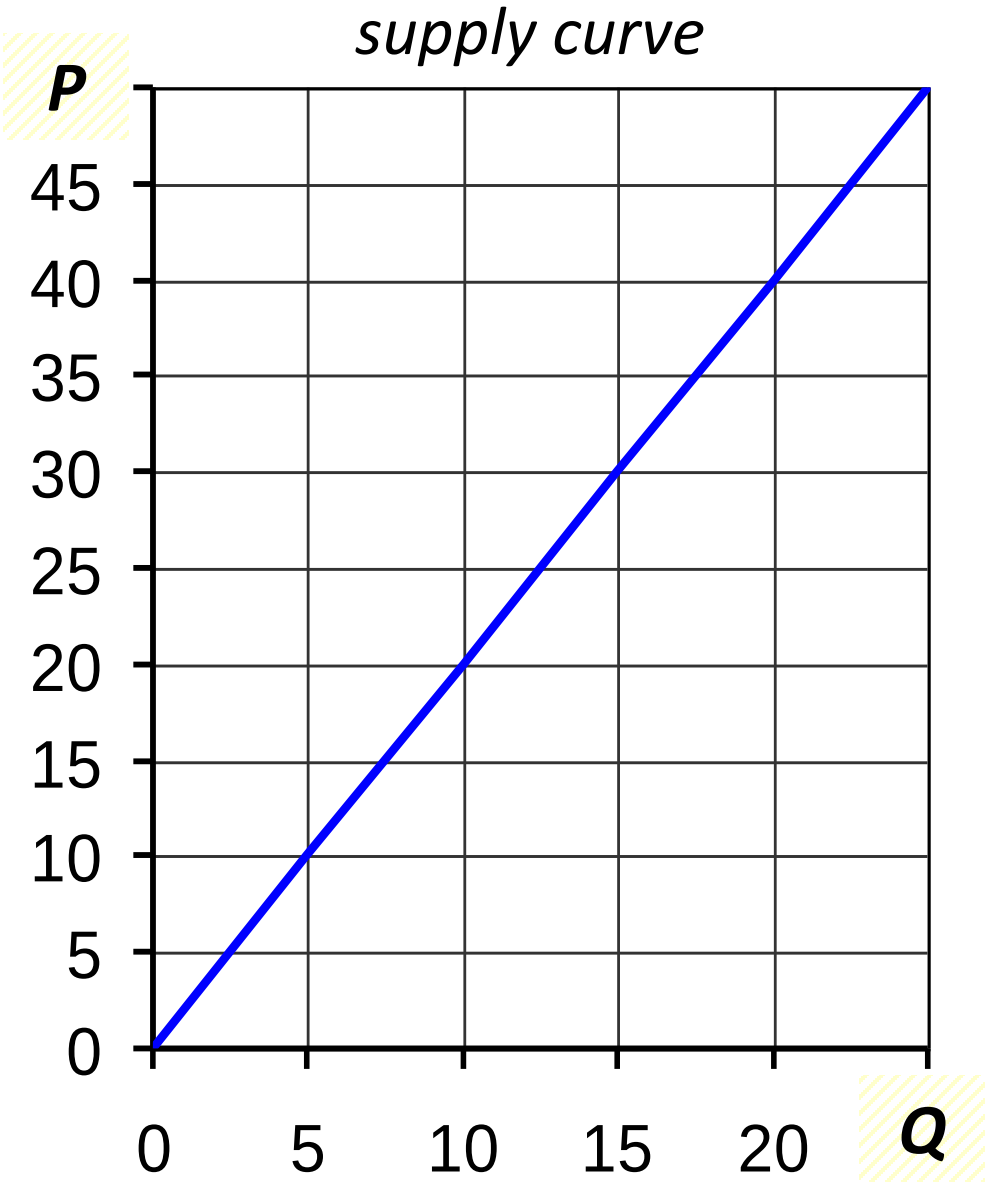
A. Find marginal seller's cost at ***Q*** = 10.

B. Find PS for ***P*** = $20.

Suppose ***P*** rises to $30. Find the increase in PS due to…

C. selling 5 additional units

D. getting a higher price on the initial 10 units



ACTIVE LEARNING 2:
Answers

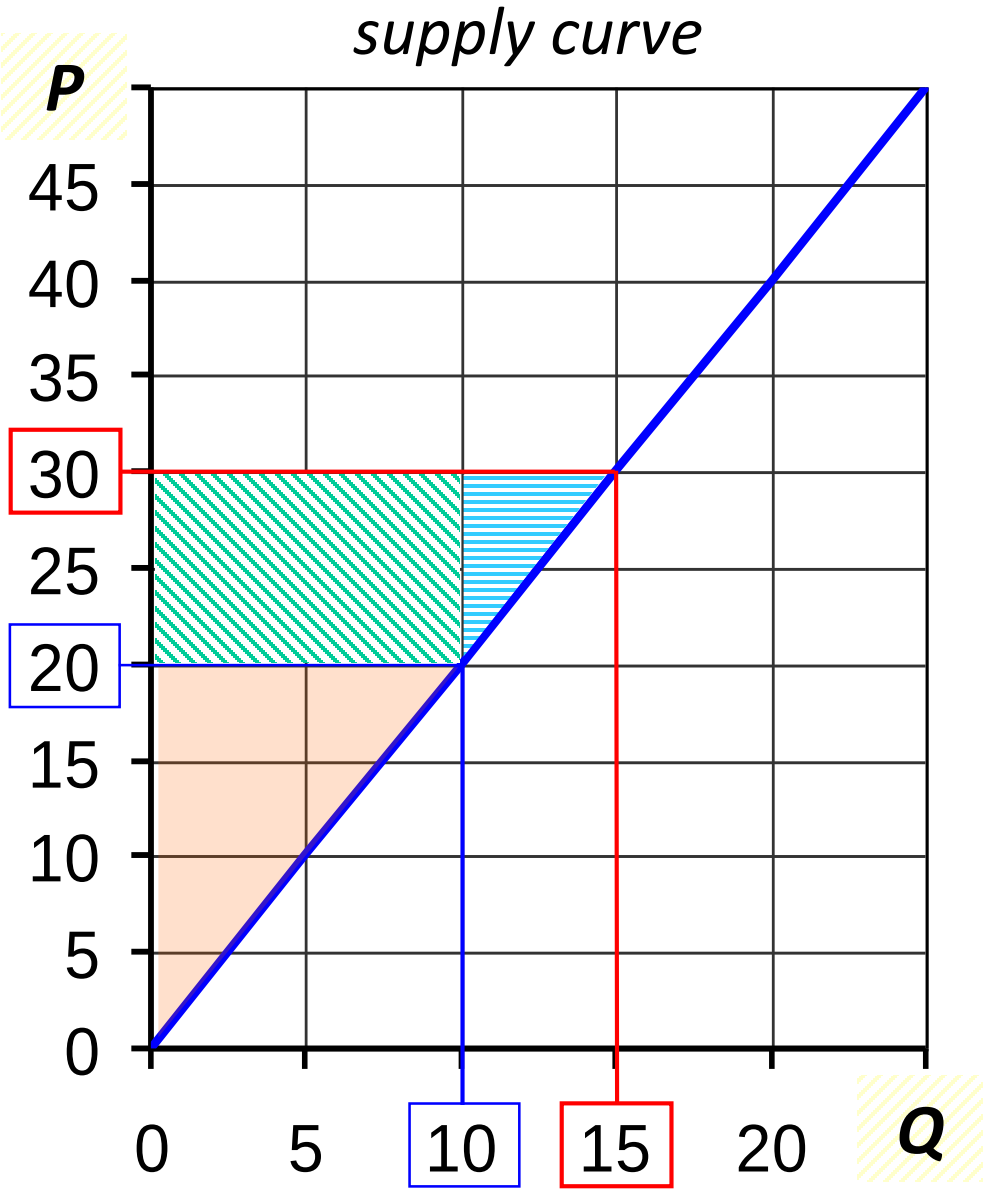
A. At ***Q*** = 10,
marginal cost = $20

B. PS = ½ x 10 x $20
= $100

P rises to $30.

C. PS on
additional units
= ½ x 5 x $10 = $25

D. Increase in PS
on initial 10 units
= 10 x $10 = $100



What Do CS, PS, and Total Surplus Measure?

CS = (value to buyers) – (amount paid by buyers)

CS measures the benefit buyers receive from participating in the market.

PS = (amount received by sellers) – (cost to sellers)

PS measures the benefit sellers receive from participating in the market.

Total surplus = CS + PS

TS measures the total gains from trade in a market.

Measuring Society's Well-Being

Total surplus

= CS + PS

= (value to buyers) – (amount paid by buyers)

+ (amount received by sellers) – (cost to sellers)

= (value to buyers) – (cost to sellers)

Efficiency

Total surplus = (value to buyers) – (cost to sellers)

An allocation of resources is **efficient** if it maximizes total surplus. Efficiency means:

- Raising or lowering the quantity of a good would not increase total surplus.
- The goods are being produced by the producers with lowest cost.
- The goods are being consumed by the buyers who value them most highly.

Evaluating the Market Equilibrium

Market eq'm:

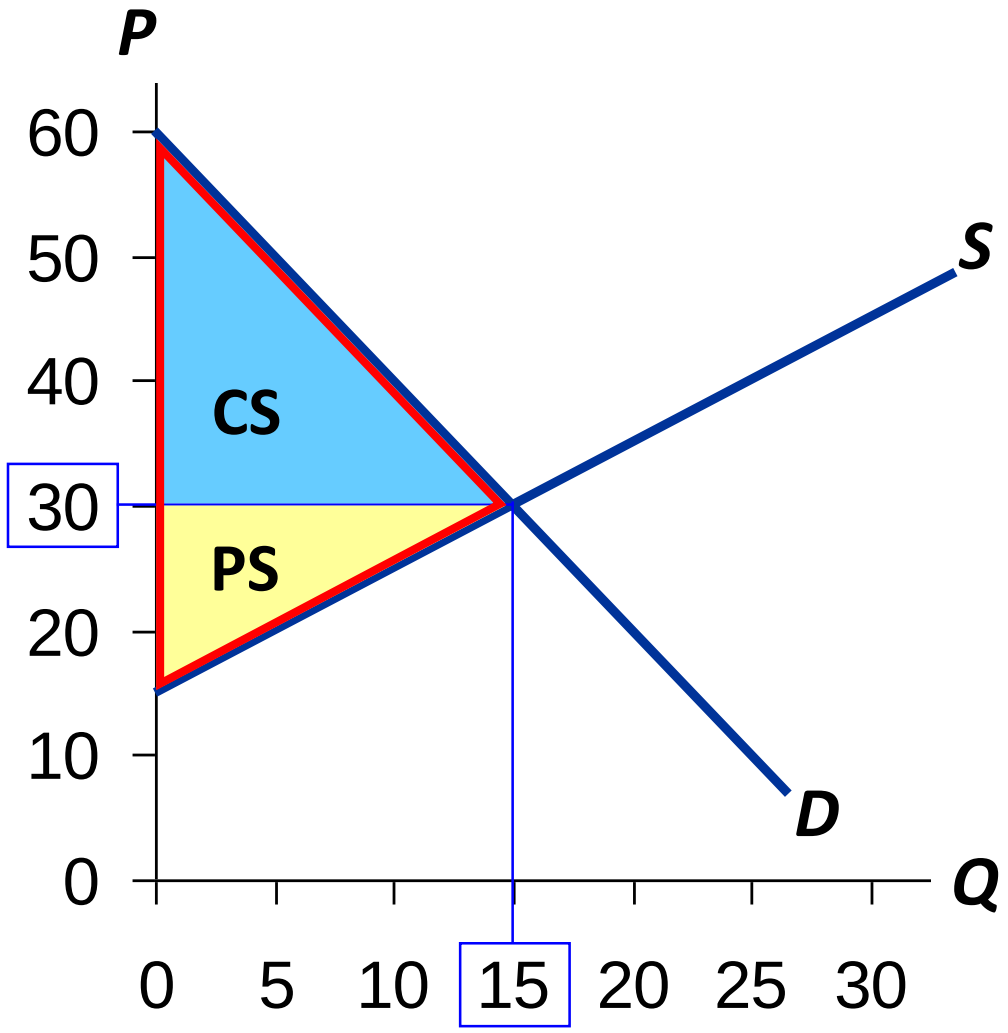
P = $30

Q = 15,000

Total surplus

= CS + PS

Is the market eq'm efficient?

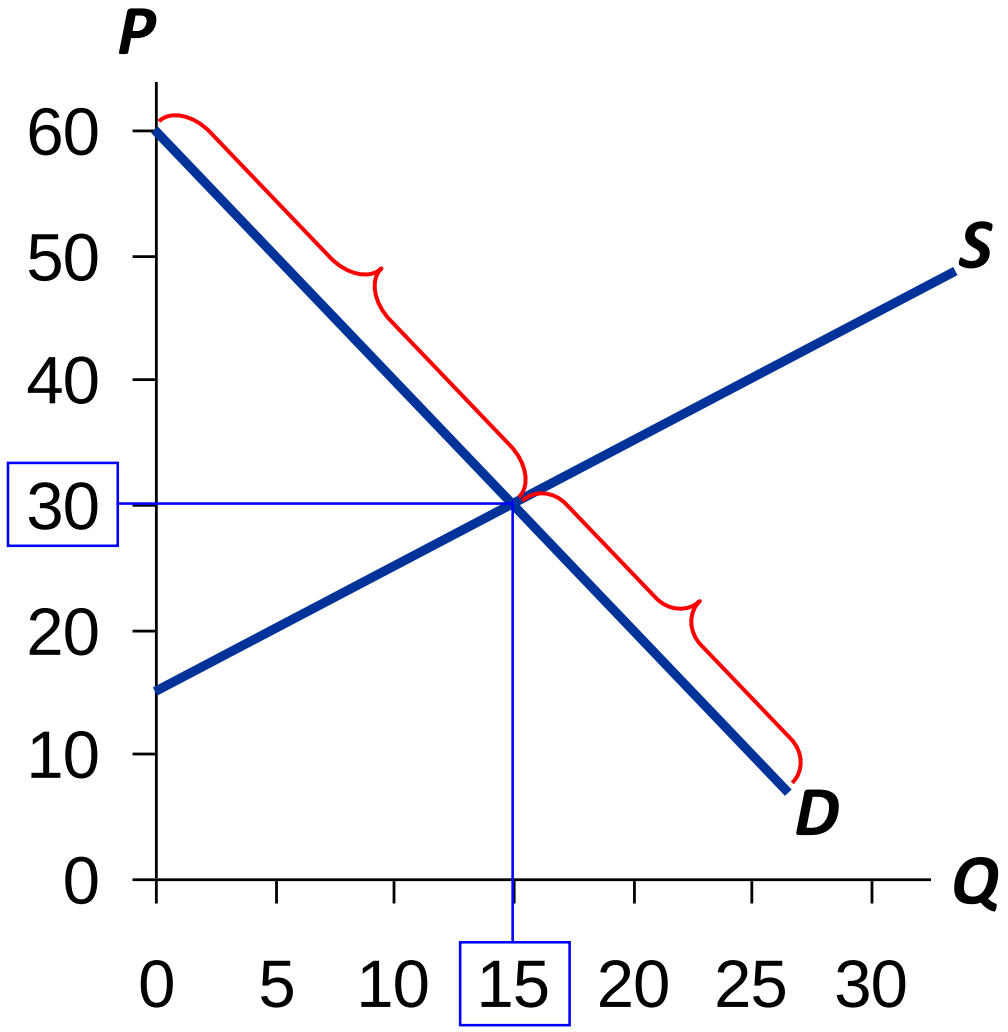


Which Buyers Get to Consume the Good?

Every buyer whose WTP is ≥ $30 will buy.

Every buyer whose WTP is < $30 will not.

So, the buyers who value the good most highly are the ones who consume it.

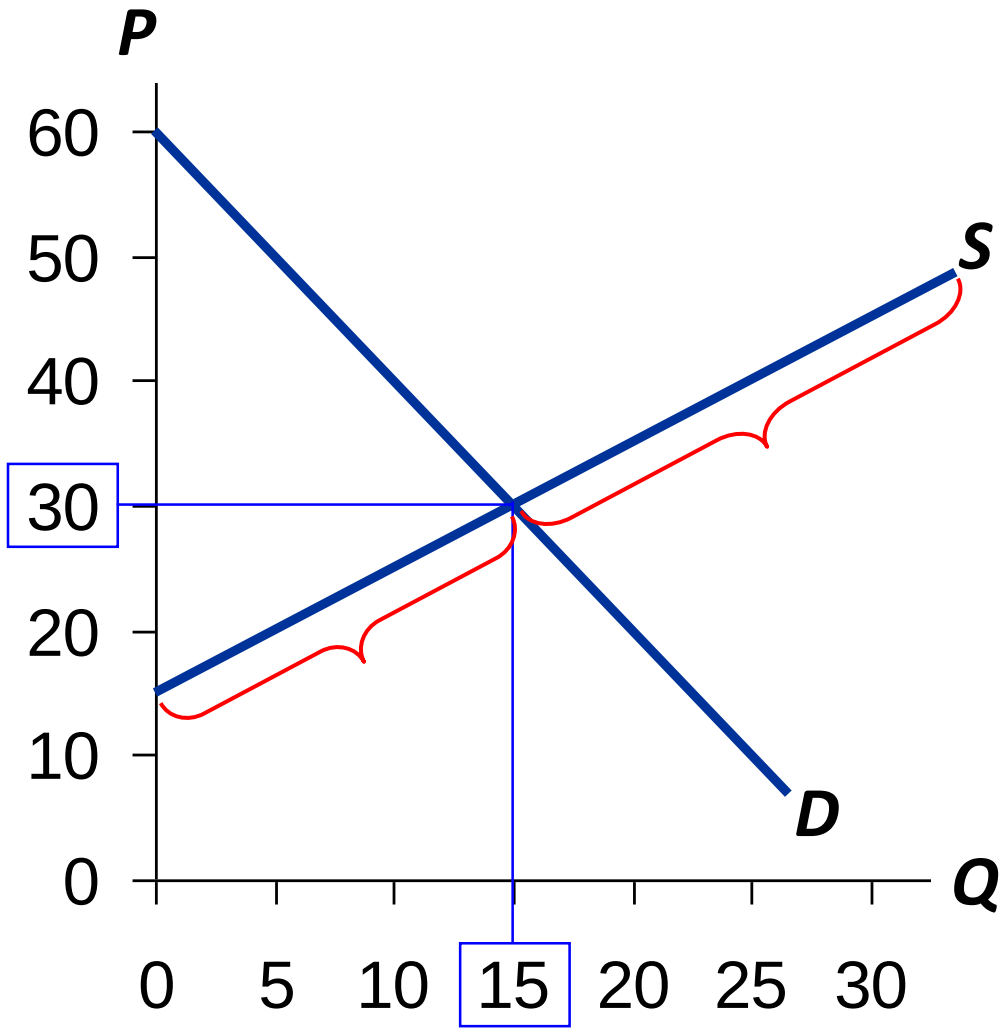


Which Sellers Produce the Good?

Every seller whose cost is ≤ $30 will produce the good.

Every seller whose cost is > $30 will not.

Hence, the sellers with the lowest cost produce the good.



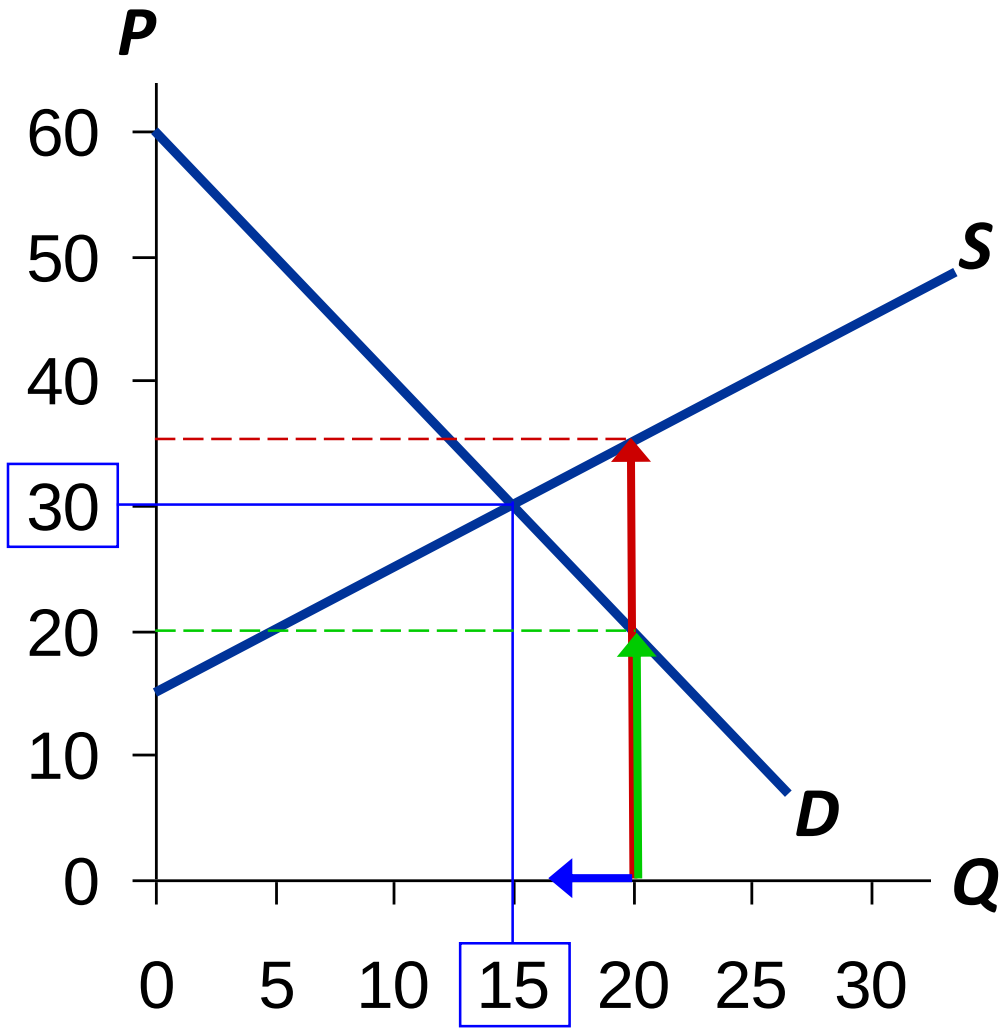
Does Eq'm *Q* Maximize Total Surplus?

At ***Q*** = 20,
cost of producing
the marginal unit
is $35

value to consumers
of the marginal unit
is only $20

Hence, can increase
total surplus
by reducing ***Q***.

*This is true at any **Q** greater than 15.*



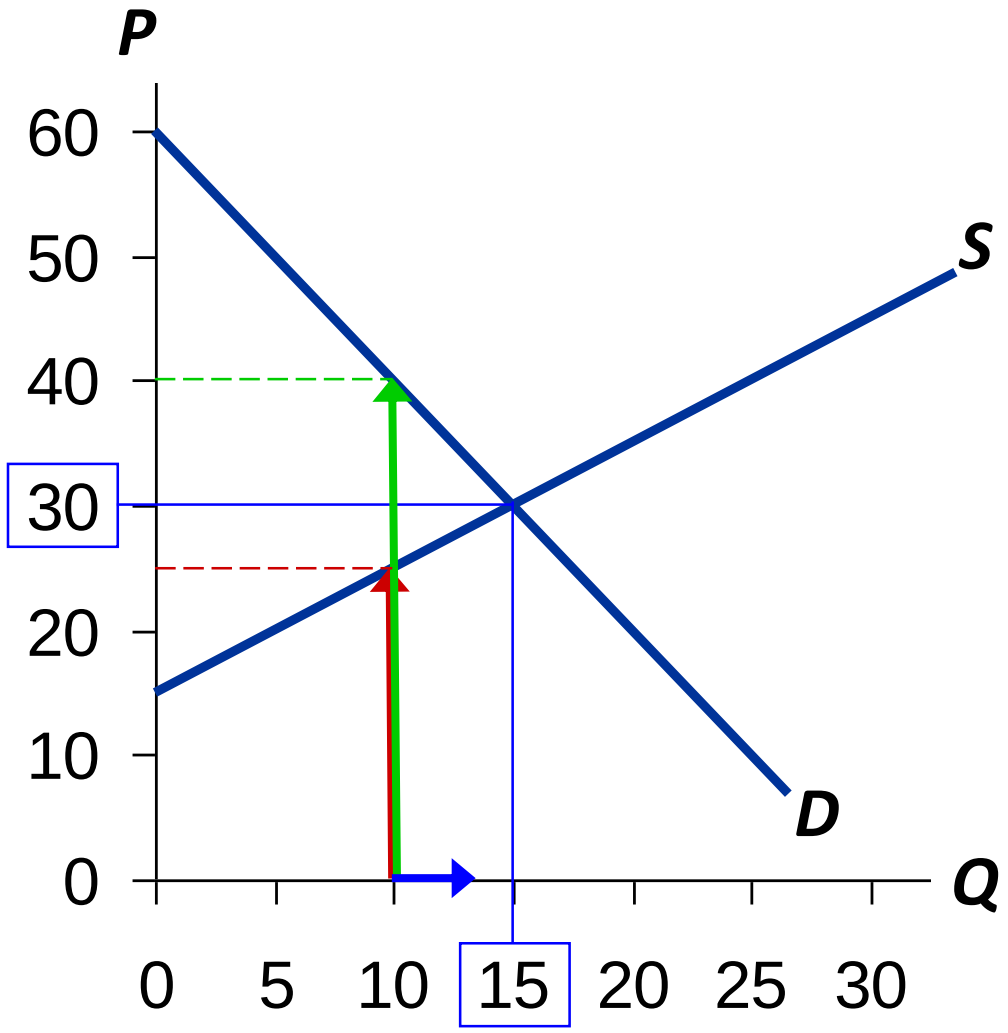
Does Eq'm *Q* Maximize Total Surplus?

At ***Q*** = 10,
cost of producing
the marginal unit
is $25

value to consumers
of the marginal unit
is $40

Hence, can increase
total surplus
by increasing ***Q***.

*This is true at any **Q** less than 15.*



Evaluating the Market Eq'm: Summary

The market eq'm is efficient:

- The eq'm ***Q*** maximizes total surplus.
- The goods are produced by the producers with lowest cost,
- and consumed by the buyers who value them most highly.

The govt cannot improve on the market outcome.

Laissez faire (French for "allow them to do"): the govt should not interfere with the market.

Why Non-Market Allocations Are Usually Bad

- Suppose the allocation of resources were instead determined by a central planner (*e.g.*, the Communist leaders of the former Soviet Union.)
- To choose an efficient allocation, the planner would need to know every seller's cost and every buyer's WTP, for each of the thousands of goods produced in the economy.
- This is practically impossible, so centrally planned economies are never very efficient.

CHAPTER SUMMARY

- The height of the ***D*** curve reflects the value of the good to buyers—their willingness to pay for it.
- Consumer surplus is the difference between what buyers are willing to pay for a good and what they actually pay.
- On the graph, consumer surplus is the area between ***P*** and the ***D*** curve.

CHAPTER SUMMARY

- The height of the ***S*** curve is sellers' cost of producing the good. Sellers are willing to sell if the price they get is at least as high as their cost.
- Producer surplus is the difference between what sellers receive for a good and their cost of producing it.
- On the graph, producer surplus is the area between ***P*** and the ***S*** curve.

CHAPTER SUMMARY

- To measure of society's well-being, we use total surplus, the sum of consumer and producer surplus.
- Efficiency means that total surplus is maximized, that the goods are produced by sellers with lowest cost, and that they are consumed by buyers who most value them.
- Under perfect competition, the market outcome is efficient. Altering it would reduce total surplus.