# CHAPTER 7

## CONSUMERS, PRODUCERS AND EFFICIENCY OF MARKET

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# Welfare Economics

- Recall, the **allocation of resources** refers to:
  - how much of each good is produced
  - which producers produce it
  - which consumers consume it
- **Welfare economics** studies how the allocation of resources affects economic well-being.
- First, we look at the well-being of consumers.

# 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 $P = \$200$.

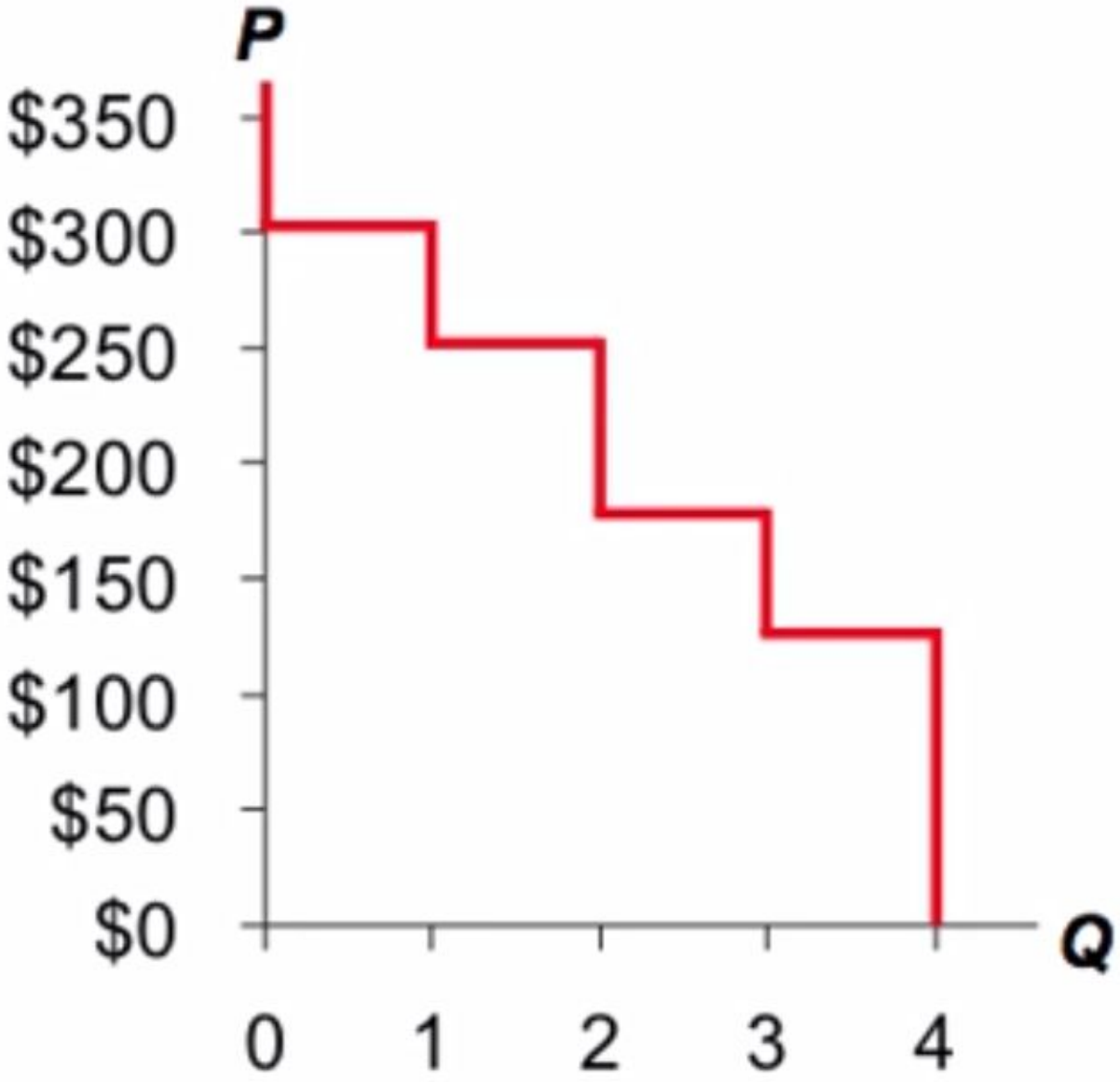
# WTP and the Demand Curve

Derive the demand schedule:

| *name* | *WTP* |
|---|---|
| Anthony | $250 |
| Chad | 175 |
| Flea | 300 |
| John | 125 |

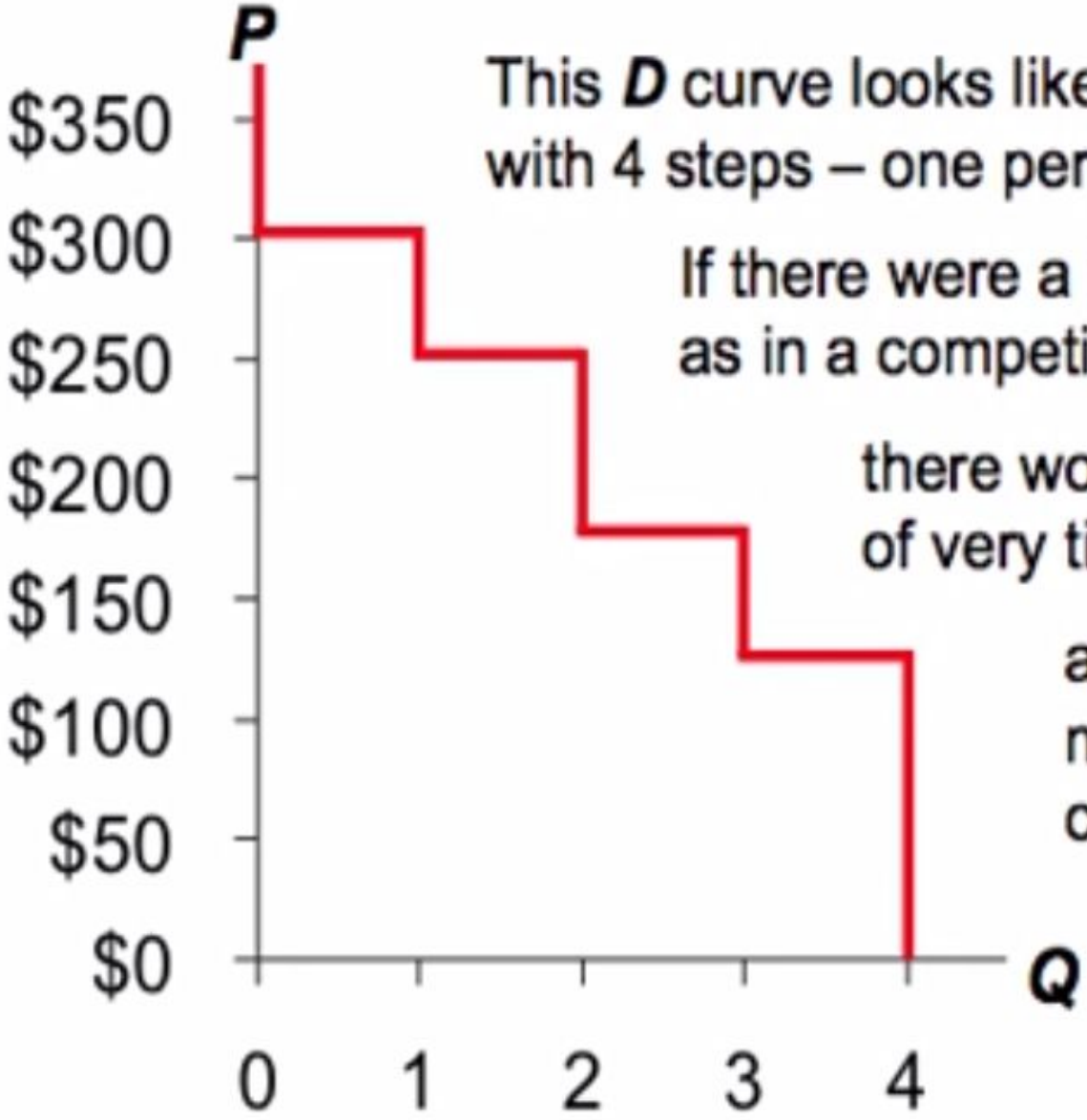
| ***P*** (price of iPod) | who buys | $Q^d$ |
|---|---|---|
| $301 & up | nobody | 0 |
| 251 – 300 | Flea | 1 |
| 176 – 250 | Anthony, Flea | 2 |
| 126 – 175 | Chad, Anthony, Flea | 3 |
| 0 – 125 | John, Chad, Anthony, Flea | 4 |

# WTP and the Demand Curve




| P | | $Q^d$ |
|---|---|---|
| $301 & up | | 0 |
| 251 – | 300 | 1 |
| 176 – | 250 | 2 |
| 126 – | 175 | 3 |
| 0 – | 125 | 4 |

# About the Staircase Shape…



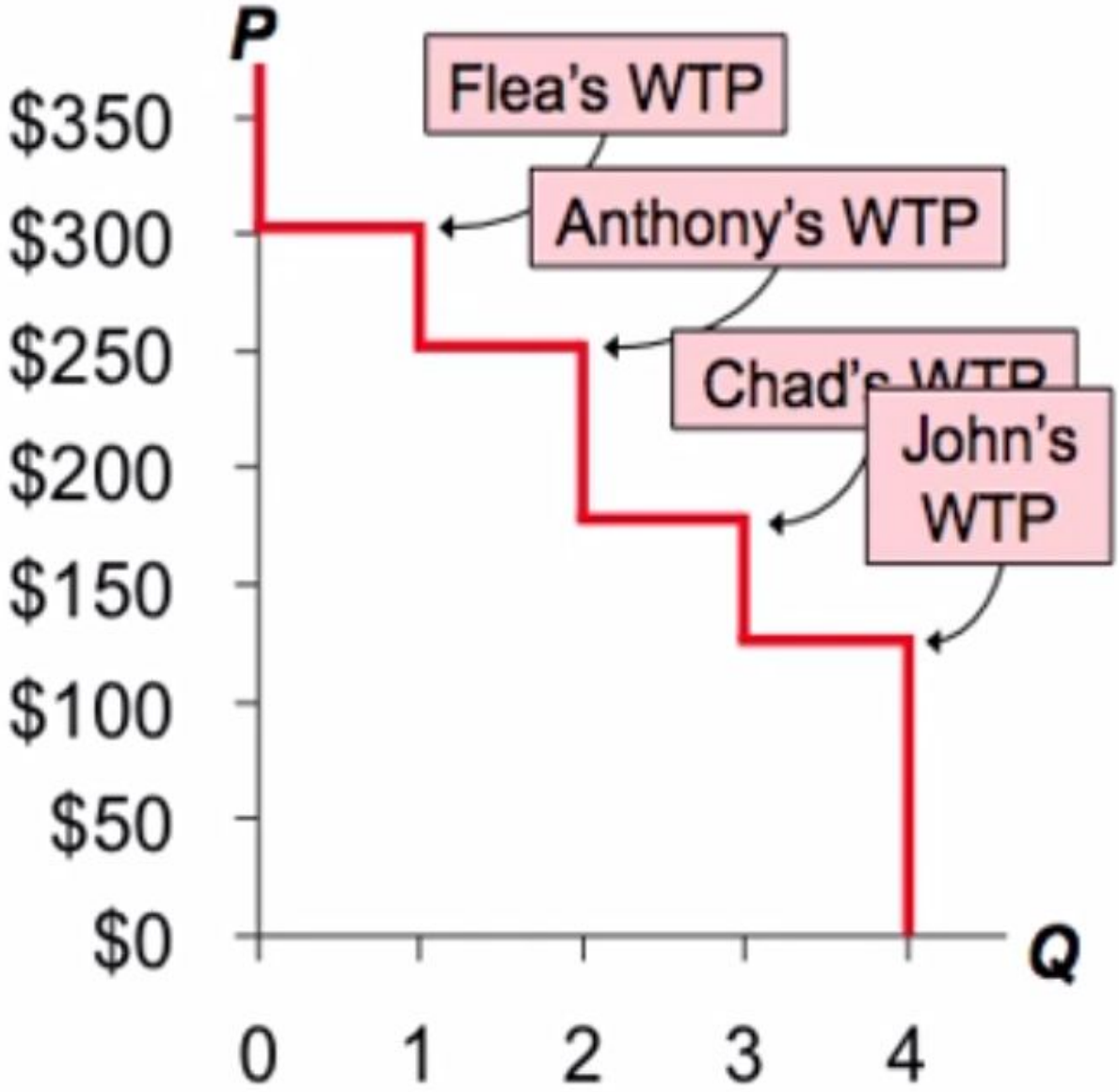

This ***D*** curve looks like a staircase with 4 steps – one per buyer.

If there were a huge # of buyers, as in a competitive market,

there would be a huge # of very tiny steps,

and it would look more like a smooth curve.

# WTP and the Demand Curve




At any **Q**, the height of the **D** curve is the WTP of the ***marginal buyer***, the buyer who would leave the market if **P** were any higher.

# Consumer Surplus (CS)

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

$$CS = WTP - P$$

| *name* | *WTP* |
|---|---|
| Anthony | $250 |
| Chad | 175 |
| Flea | 300 |
| John | 125 |

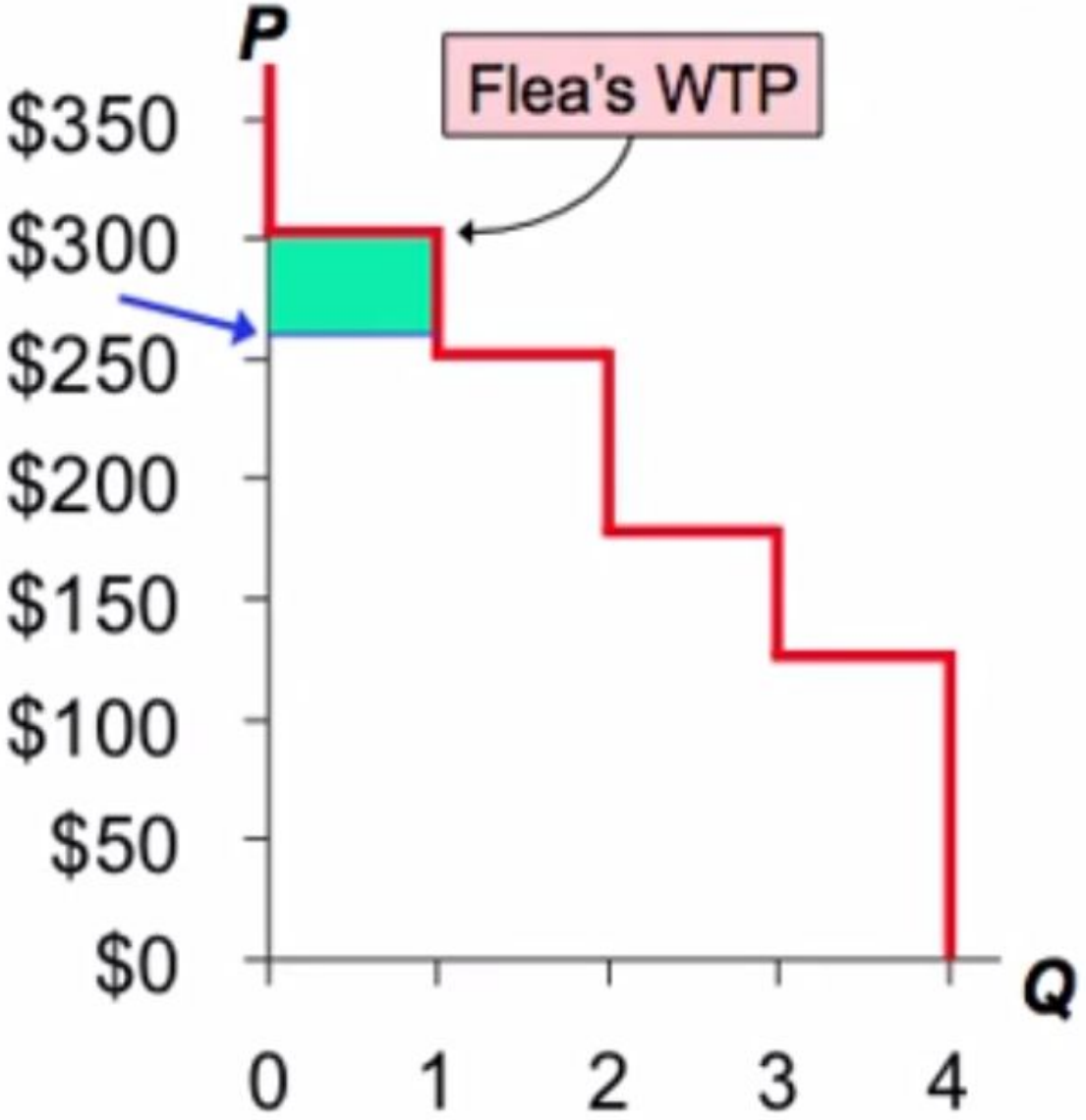
Suppose $P$ = $260.

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 and the Demand Curve

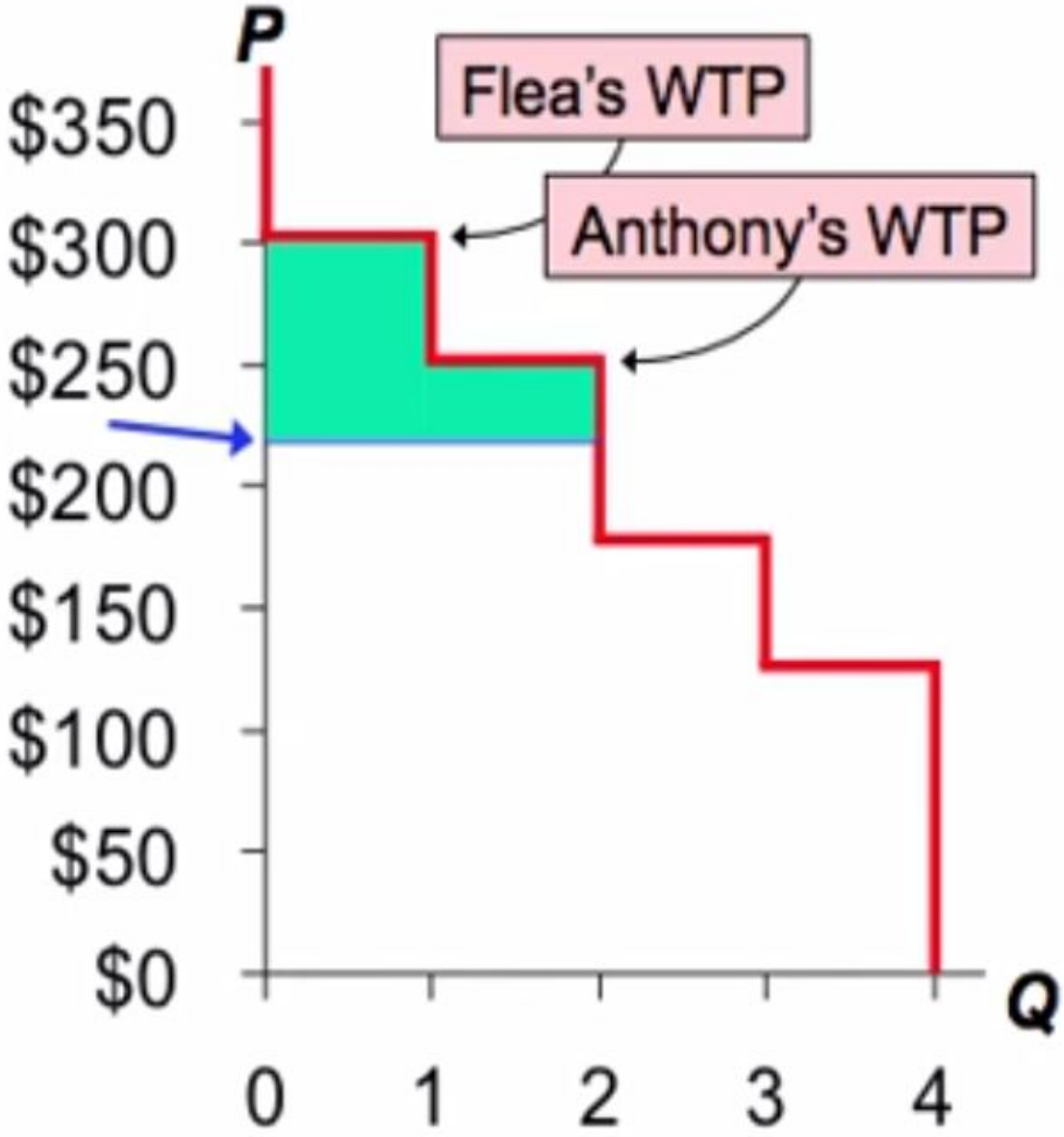



***P*** = $260

Flea's CS =
$300 – 260 = $40

Total CS = $40

# CS and the Demand Curve



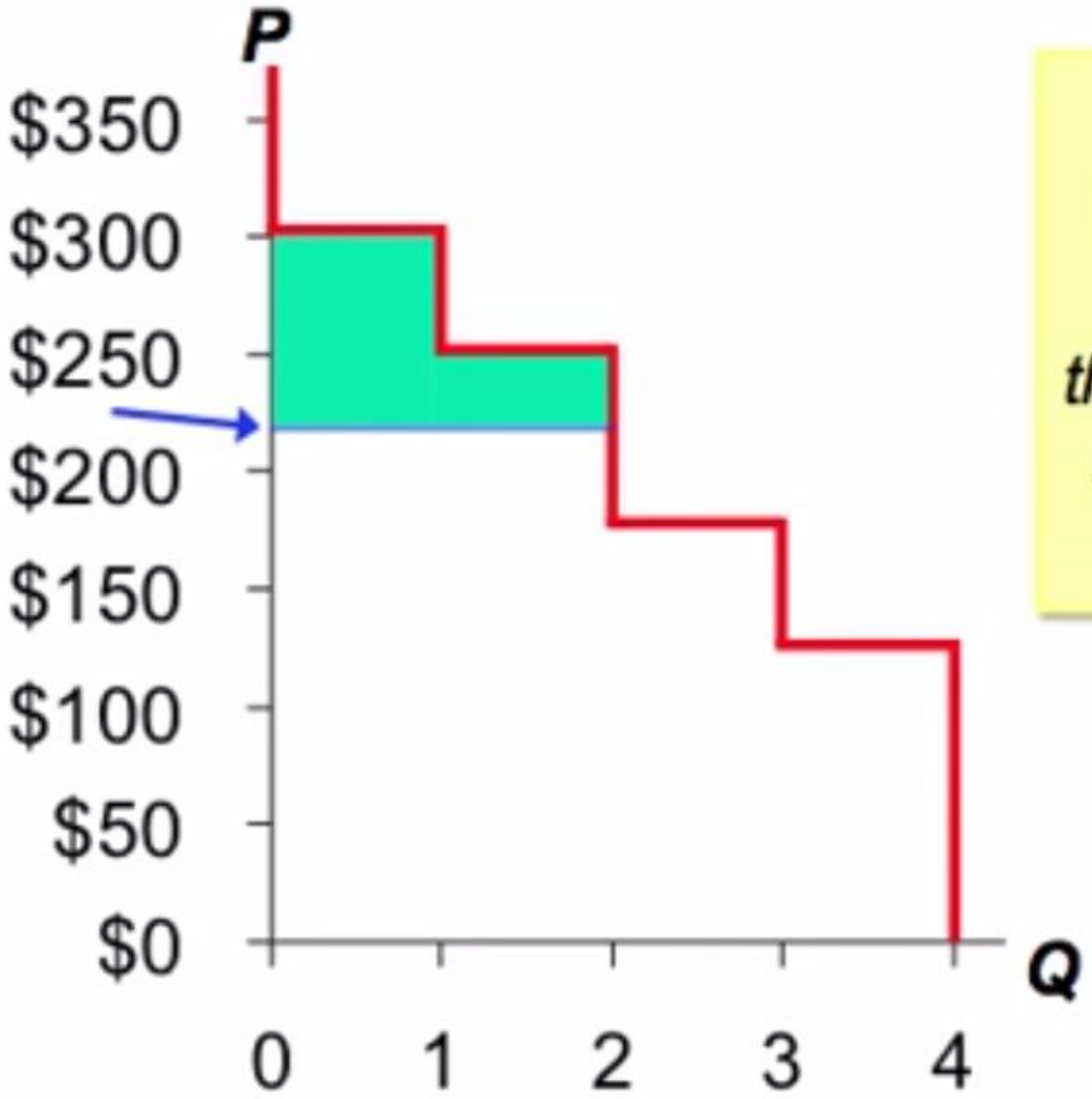

Instead, suppose
***P*** = $220

Flea's CS =
$300 – 220 = $80

Anthony's CS =
$250 – 220 = $30

Total CS = $110

# CS and the Demand Curve




*The lesson:*

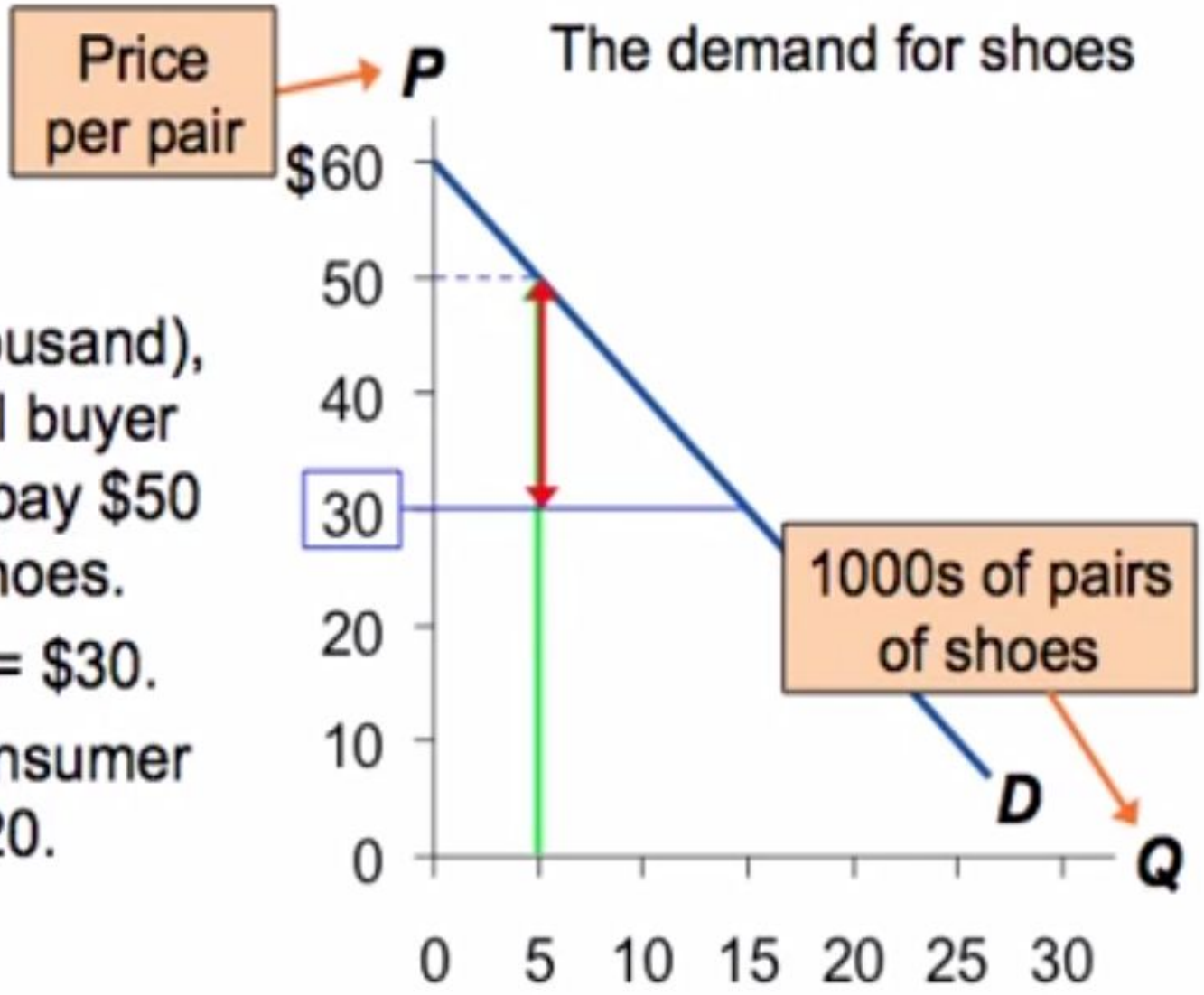
*Total CS equals the area under the demand curve above the price, from 0 to **Q**.*

# 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.



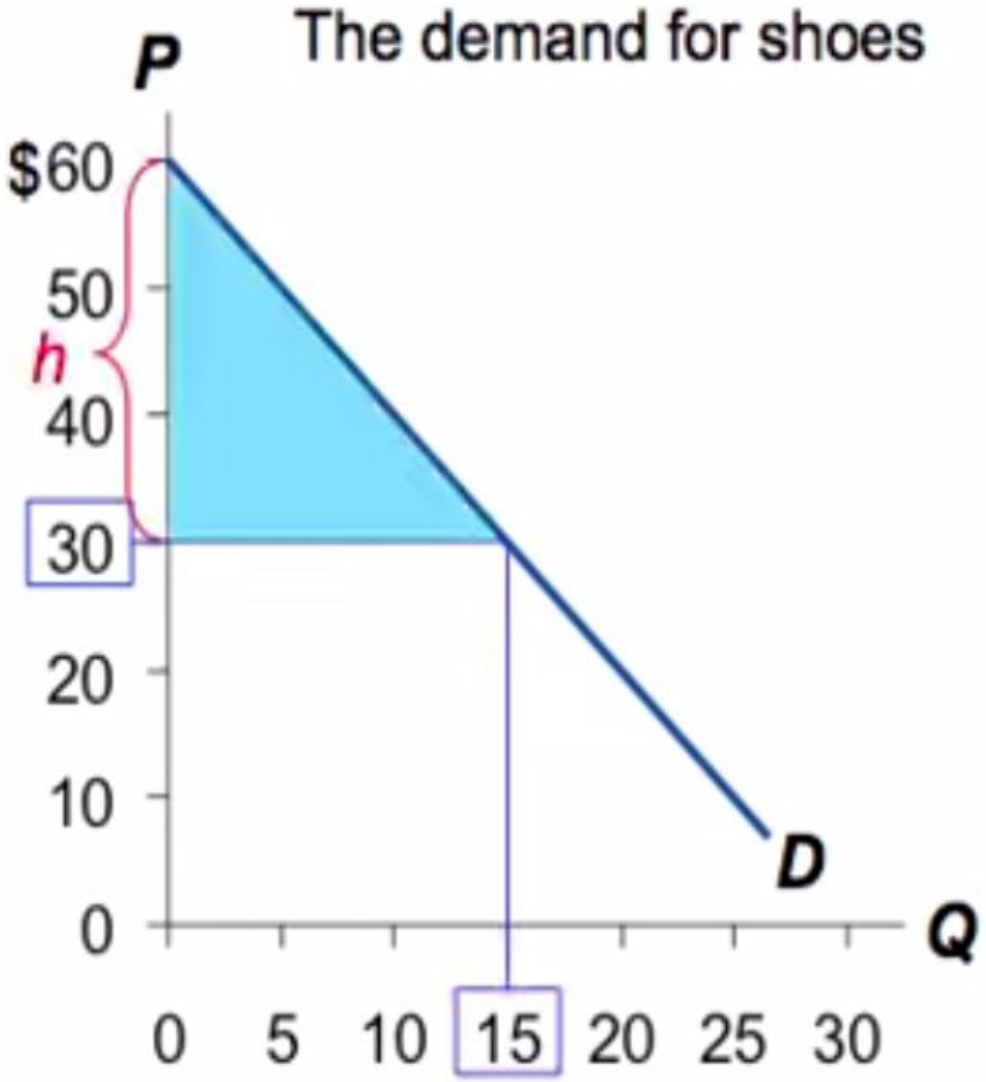
# CS with Lots of Buyers & a Smooth D Curve

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 = $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.