



Messing with the Market I:

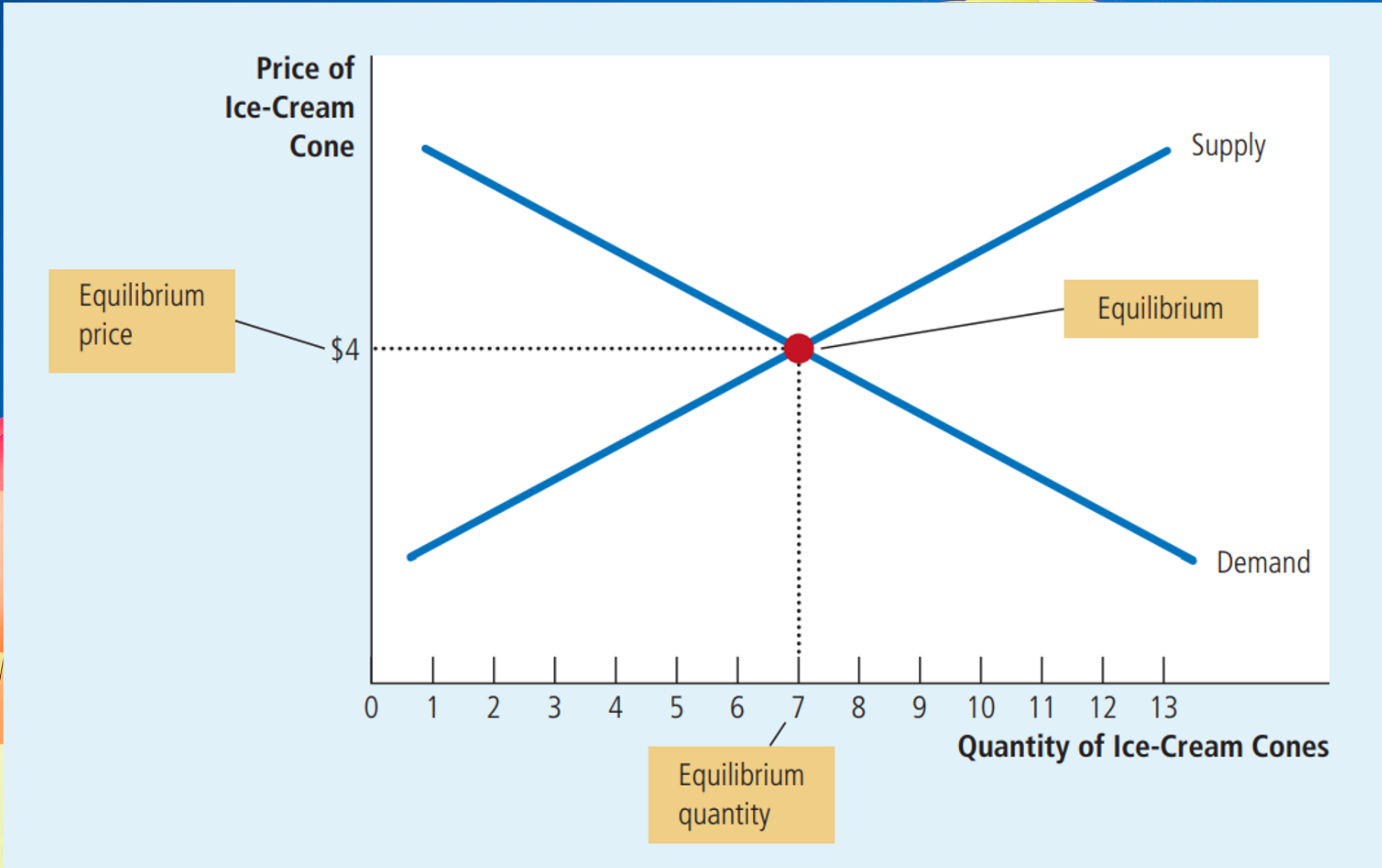
Ceilings & Floors

BECO-3310 Fall 2025

Recap

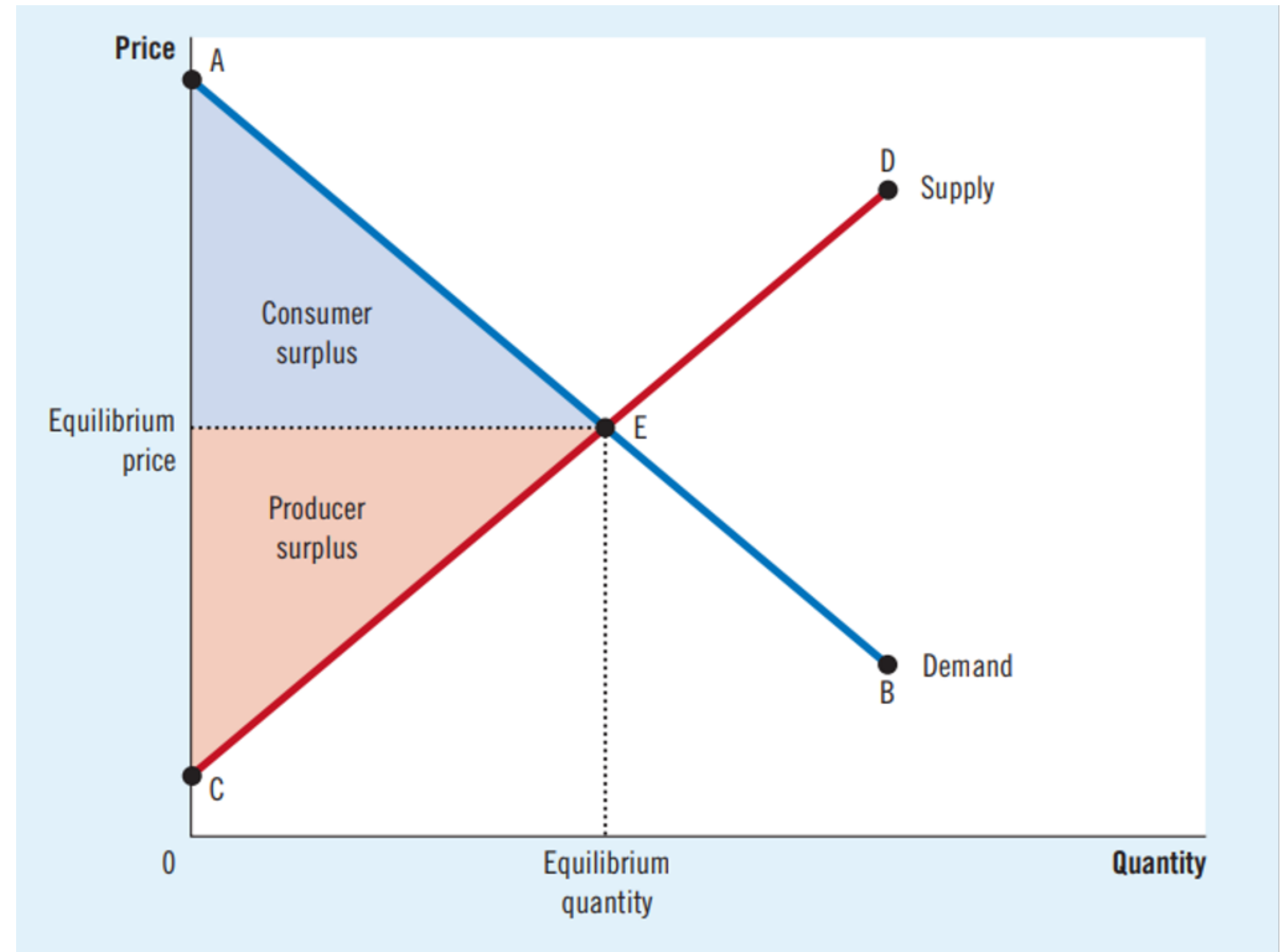
Equilibrium

- At competitive equilibrium, sellers bring to market exactly the amount (Q^*) that buyers are willing to purchase at that price (P^*).
- Quantity Supplied = Quantity Demanded
- No wasteful production occurs, nor is anyone willing to pay for the good but unable to obtain it.



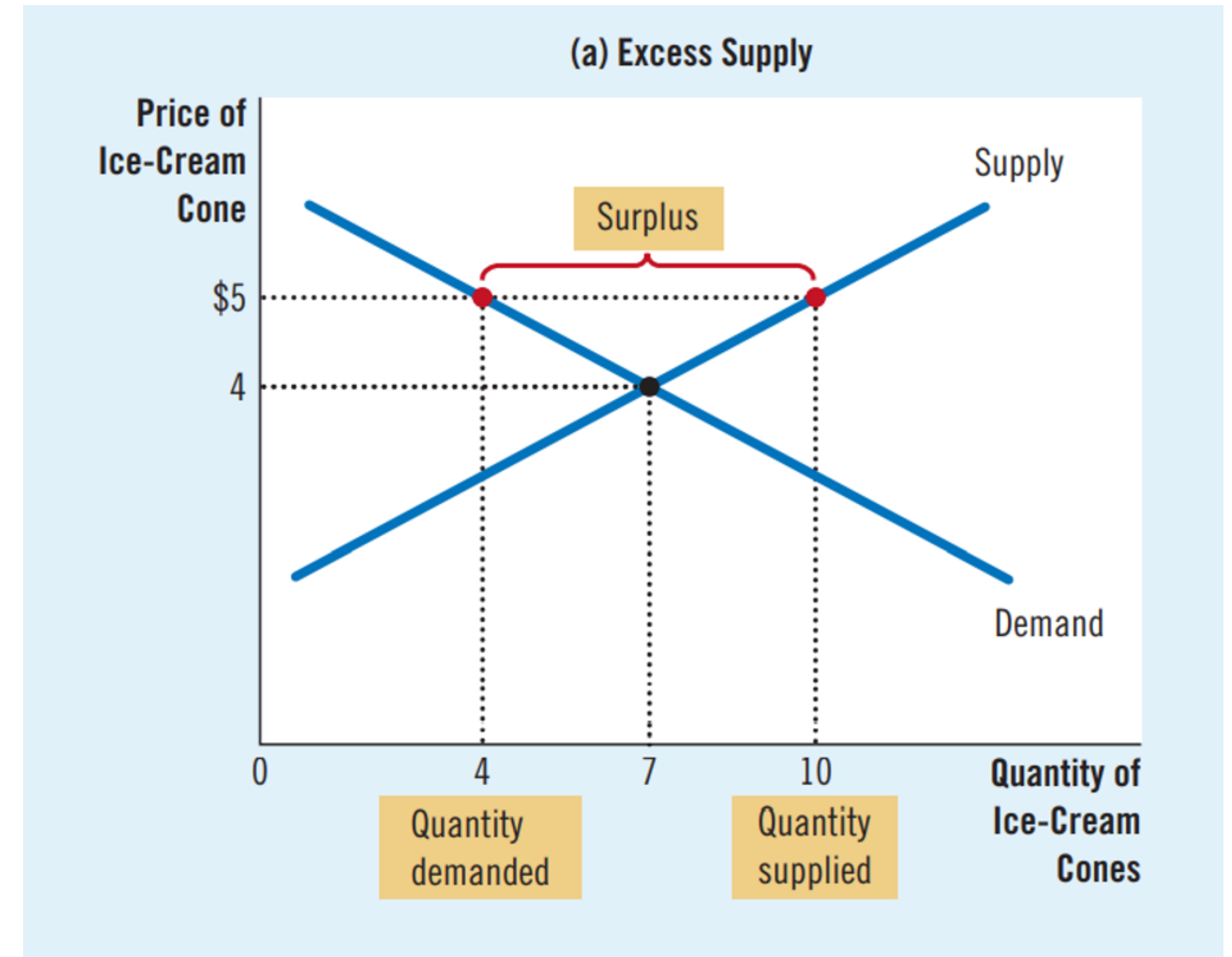
Total Surplus

- The competitive equilibrium price and quantity are such that they maximize total surplus (consumer + producer surplus).
- The market is efficient.



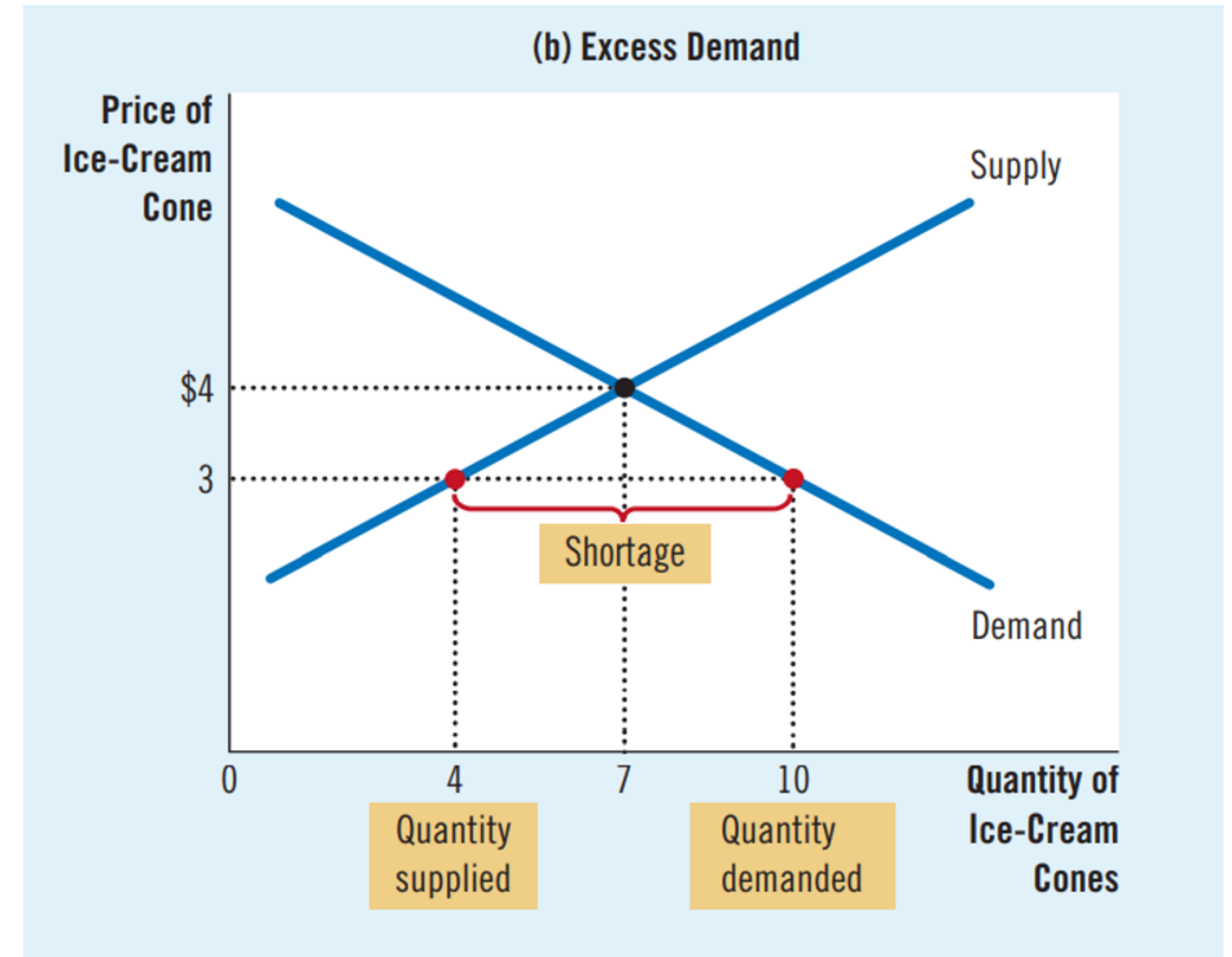
Surplus

- A situation in which quantity supplied is greater than quantity demanded.
 - $Q^S > Q^D$
- Excess Supply
 - $P > P^*$



Shortage

- A situation in which quantity demanded is greater than quantity supplied.
 - $Q^S < Q^D$
- Excess Demand
 - $P < P^*$



Equilibrium

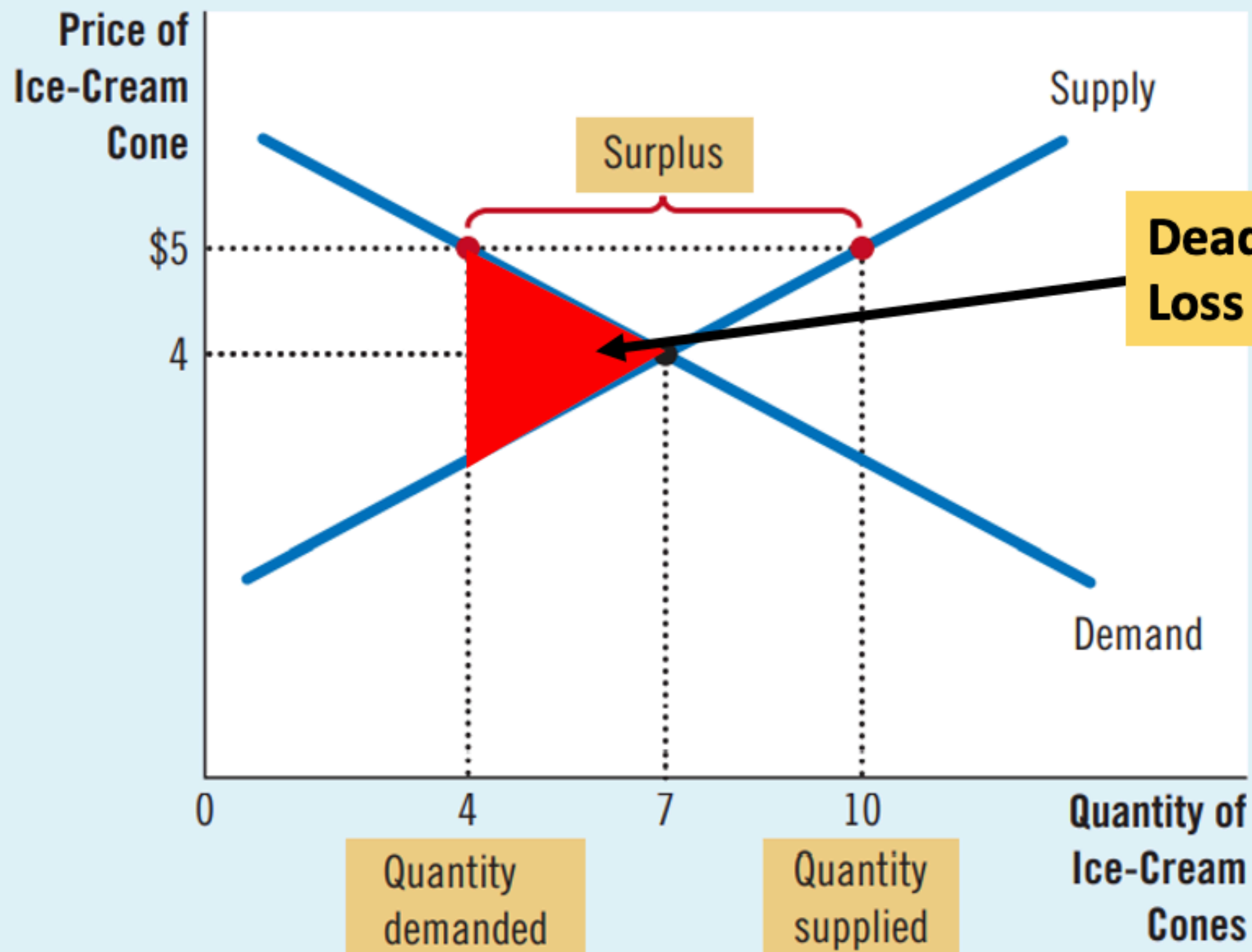
- Surpluses & shortages are temporary when the price system is free to adjust.
 - Markets will tend toward the equilibrium P^* & Q^* .
- Surplus
 - Downward pressure on price. $\downarrow Q^S, \uparrow Q^D$
- Shortage
 - Upward pressure on price. $\uparrow Q^S, \downarrow Q^D$

Deadweight Loss

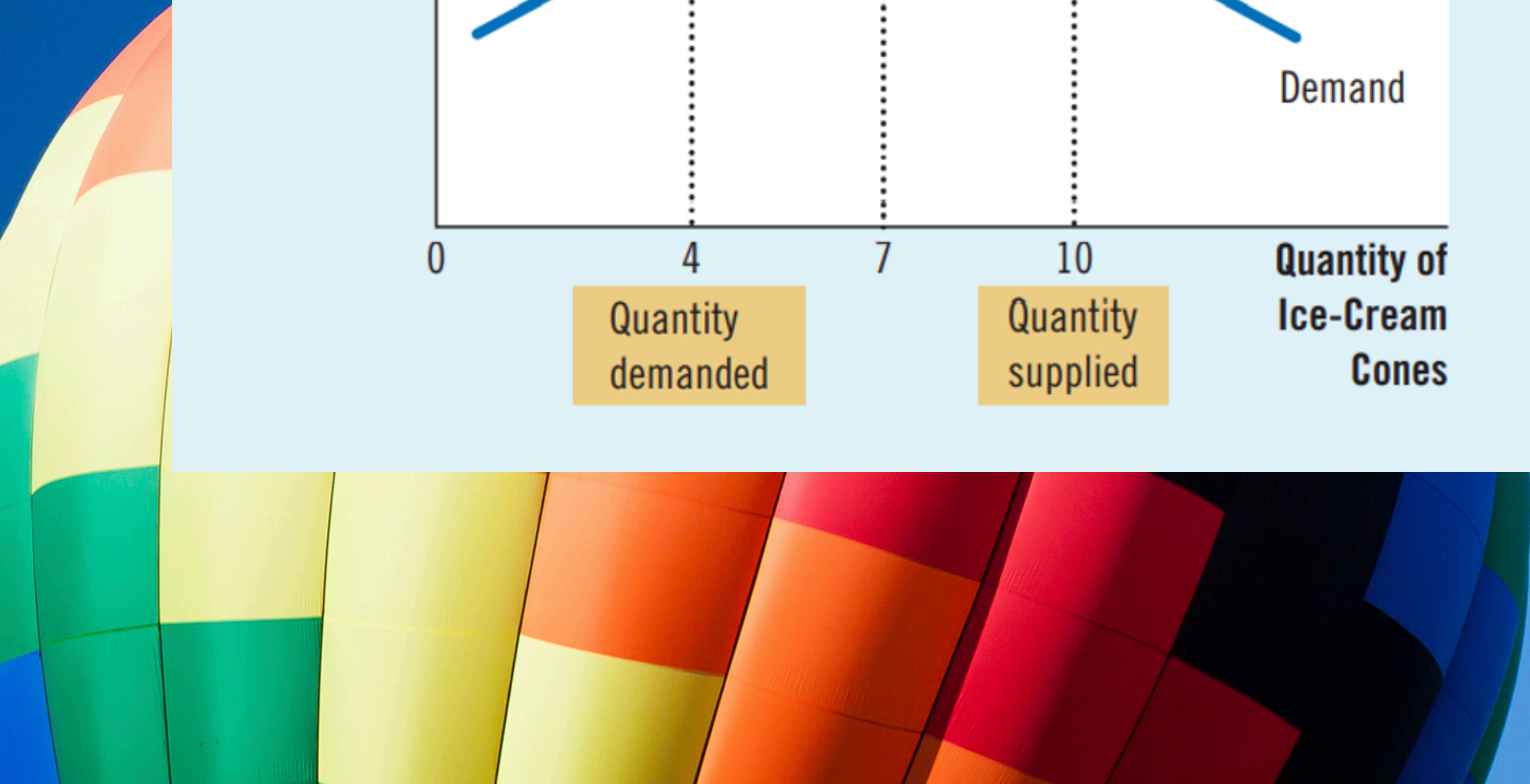
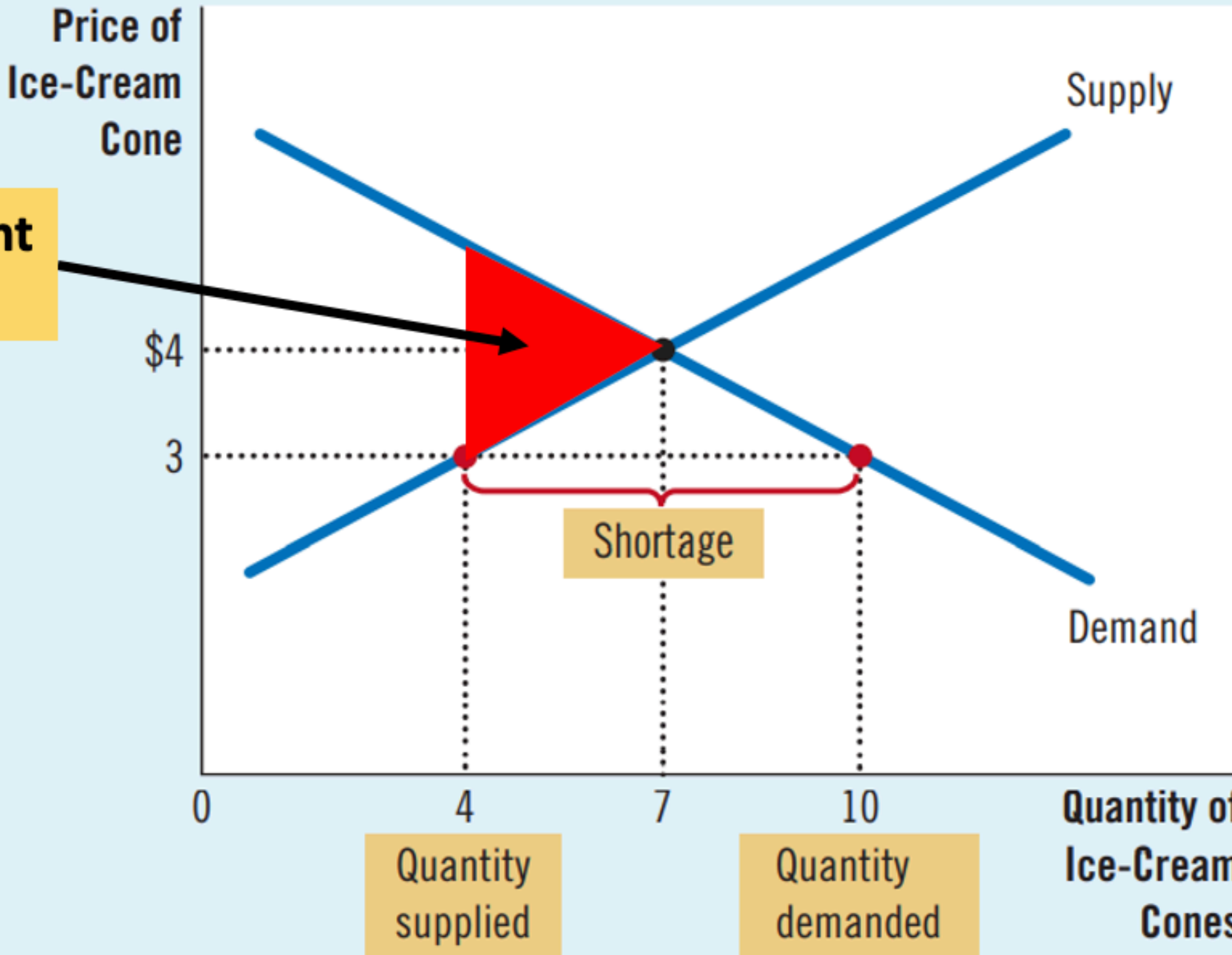
- The value of total surplus foregone when a market is **not allowed to adjust** toward its competitive equilibrium.
- Surpluses & shortages persist, creating deadweight loss in the market.



(a) Excess Supply



(b) Excess Demand





Messing with the Market I:

Ceilings & Floors

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Price controls

The Role of Prices

- •Prices perform an essential role in conveying information to buyers & sellers in the market.
 - Reveal relative scarcities.
 - Reveal potential profit (or loss) opportunities.
- Incentivize consumers & producers to economize on the good, or find alternatives.
 - True in both good times & bad.

Price Gouging

- “Connecticut should pass its Senate Bill 60, which states that during a ‘severe weather event emergency, **no person** within the chain of distribution of consumer goods and services **shall sell or offer to sell consumer goods or services for a price that is unconscionably excessive.**’”

The Role of Prices

- The role of prices is often misunderstood.
- Many view prices as **arbitrary** and/or **unfair** assignments of numbers by sellers to buyers.
- When people feel this way, what is a common recourse?

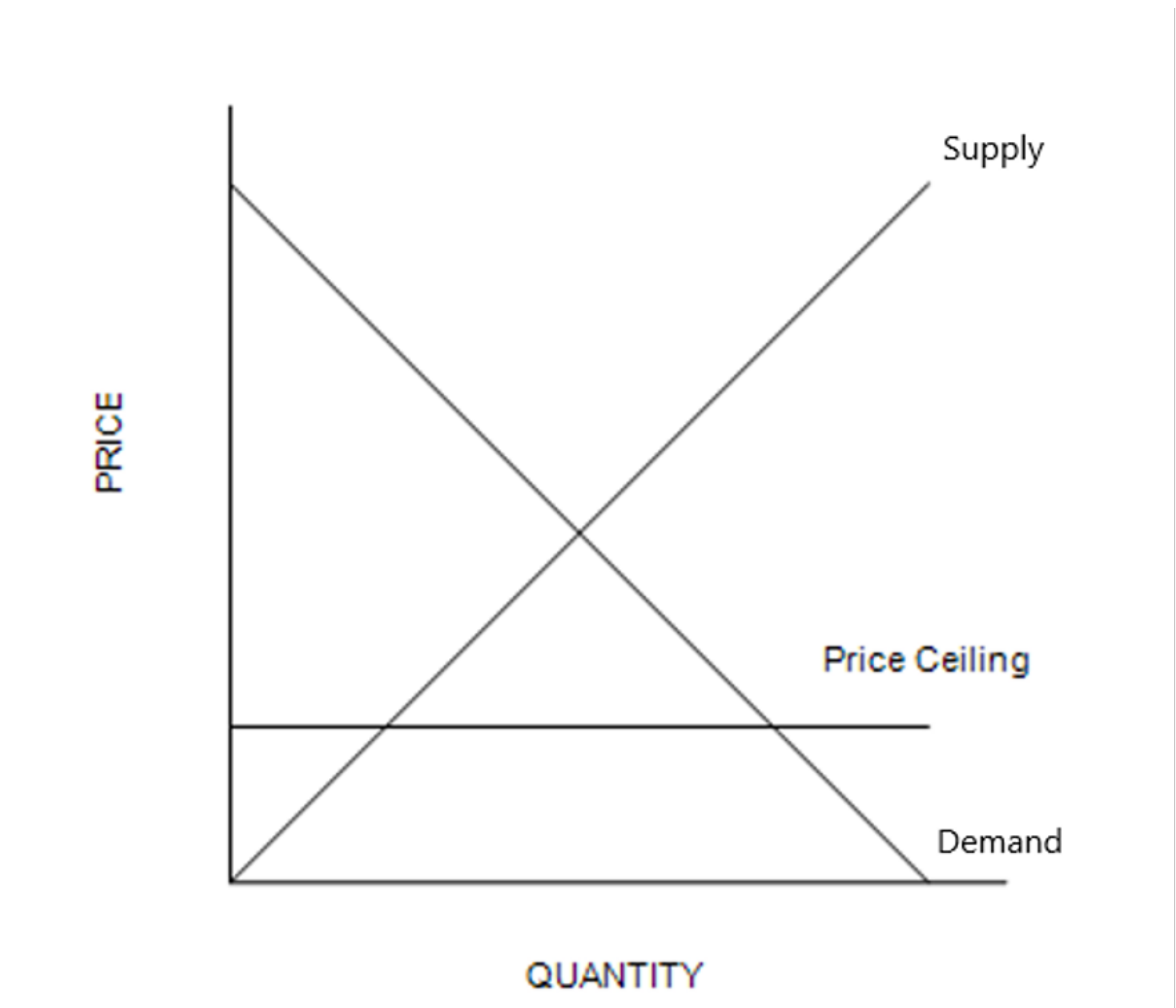
Price controls

- Legally mandated maximum or minimum prices that can be charged for a good or service.
- Price controls prevent the market from adjusting toward its equilibrium conditions.
- Two types:
 - Price ceiling
 - Price floor

Price ceiling

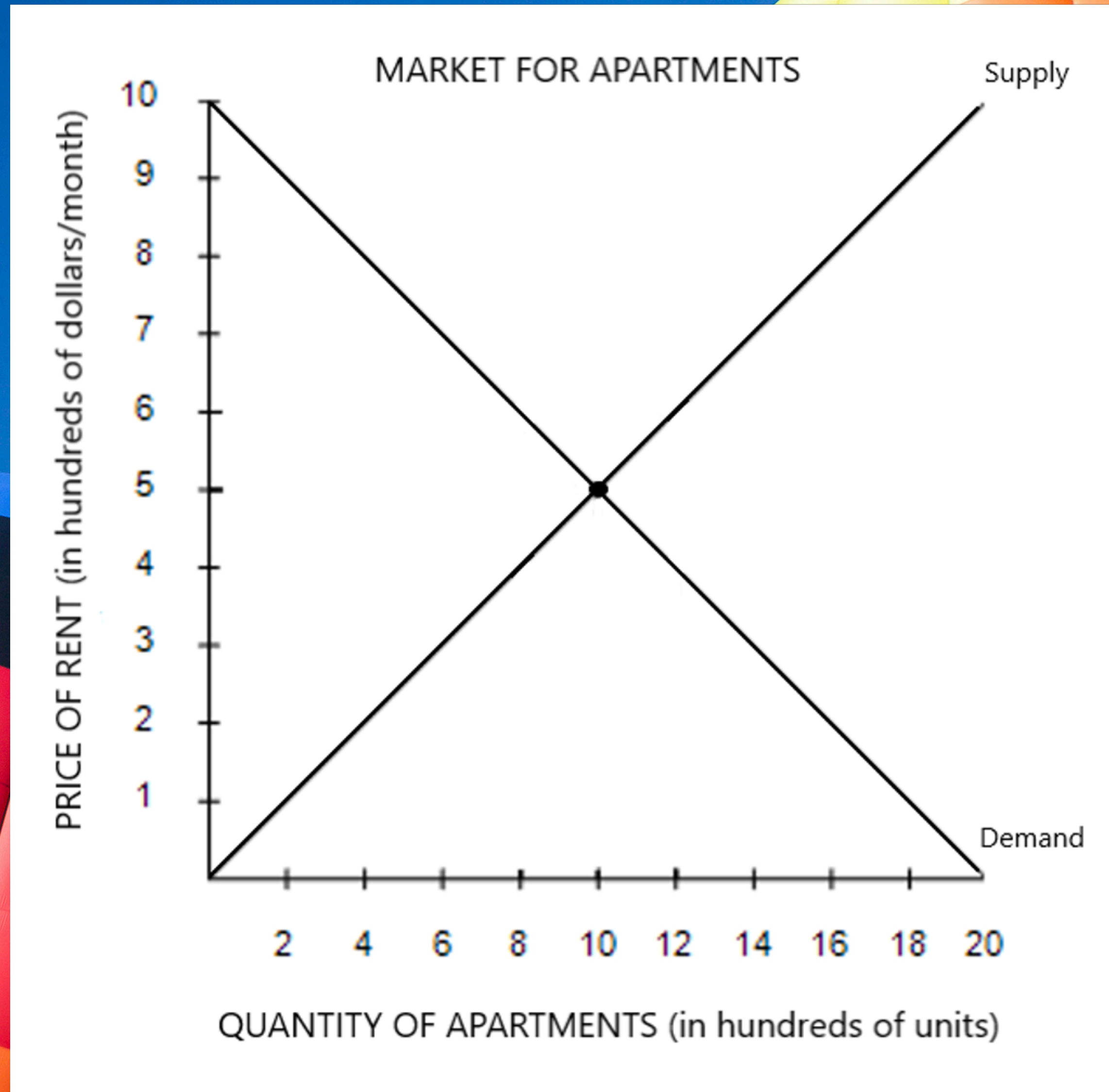
Price ceiling

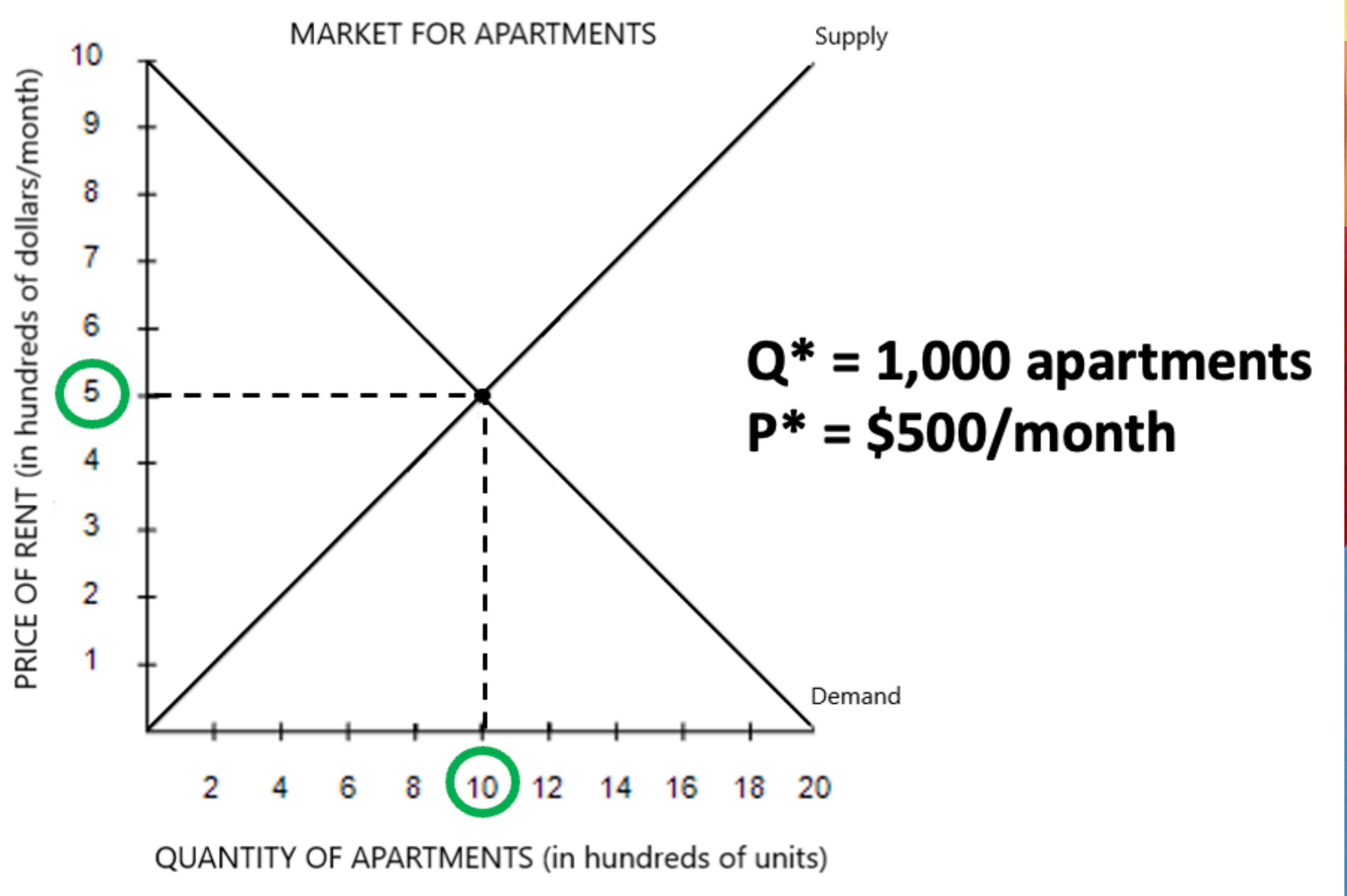
- A legal maximum on the price at which a good can be sold.
 - A price cannot rise above a certain point.
- Example: Rent-Control Laws



Price Ceiling: Rent-Control Law

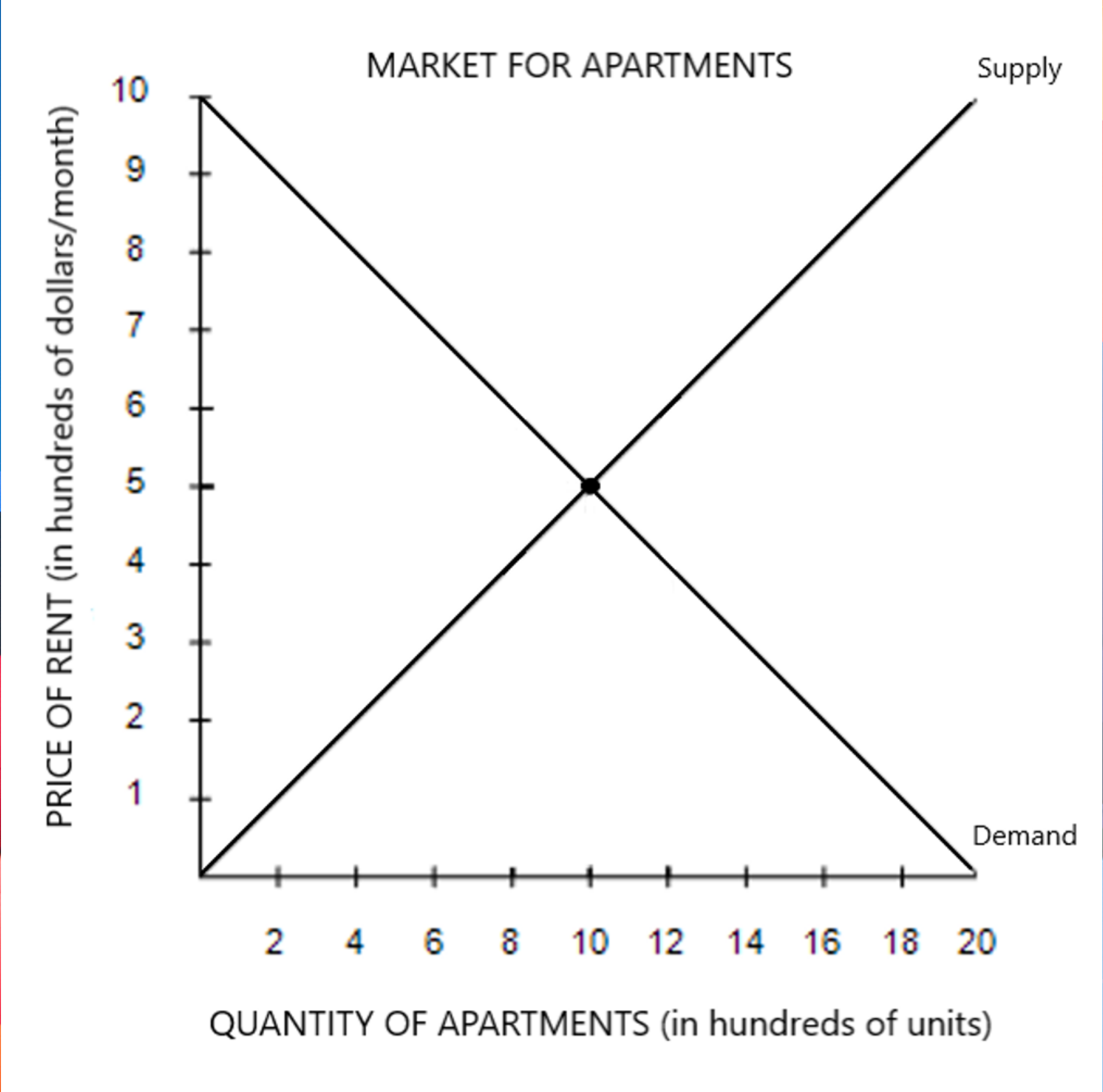
- Assume the market for apartments is in equilibrium...
 - 1. What is the equilibrium price & quantity?

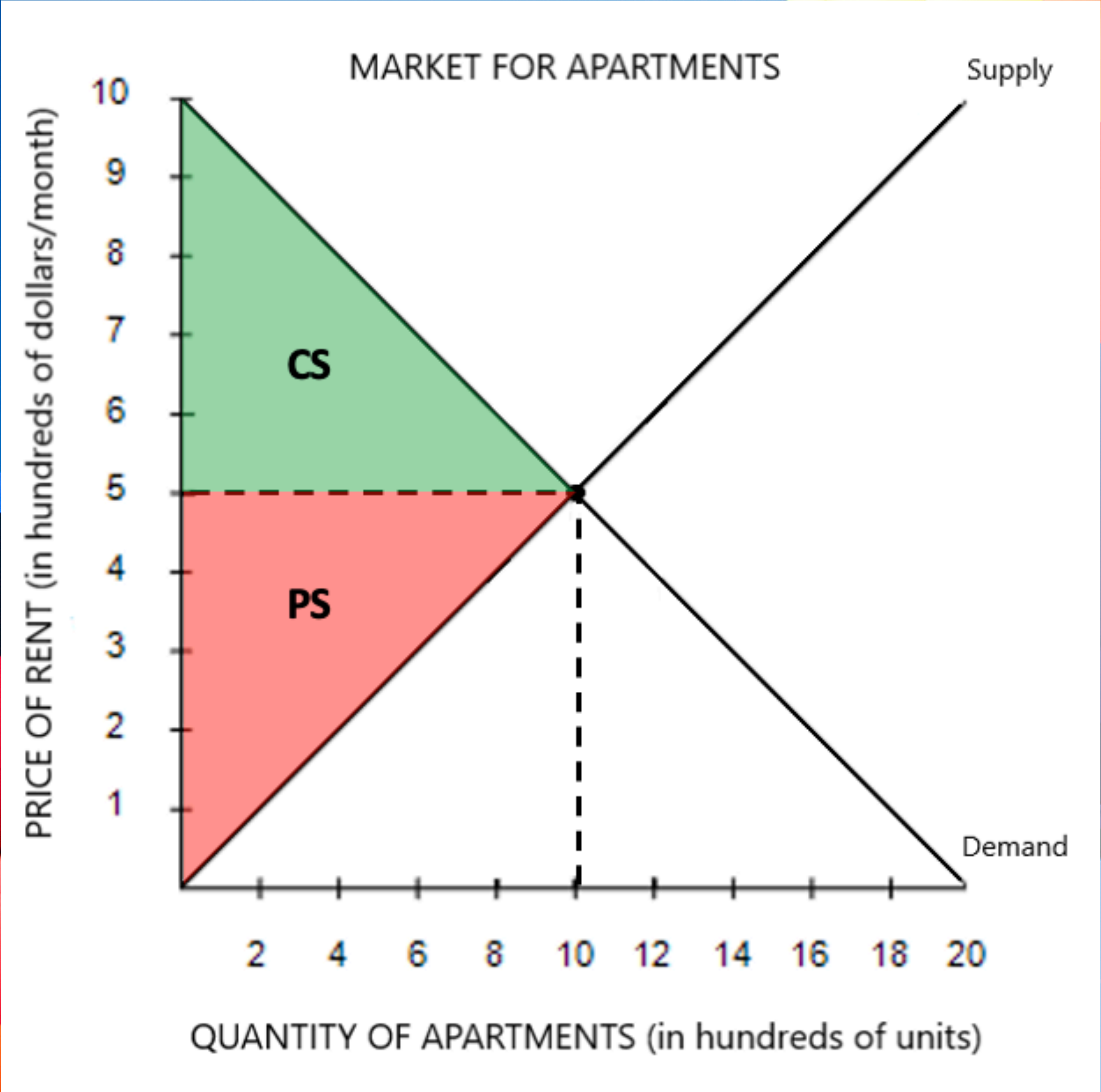


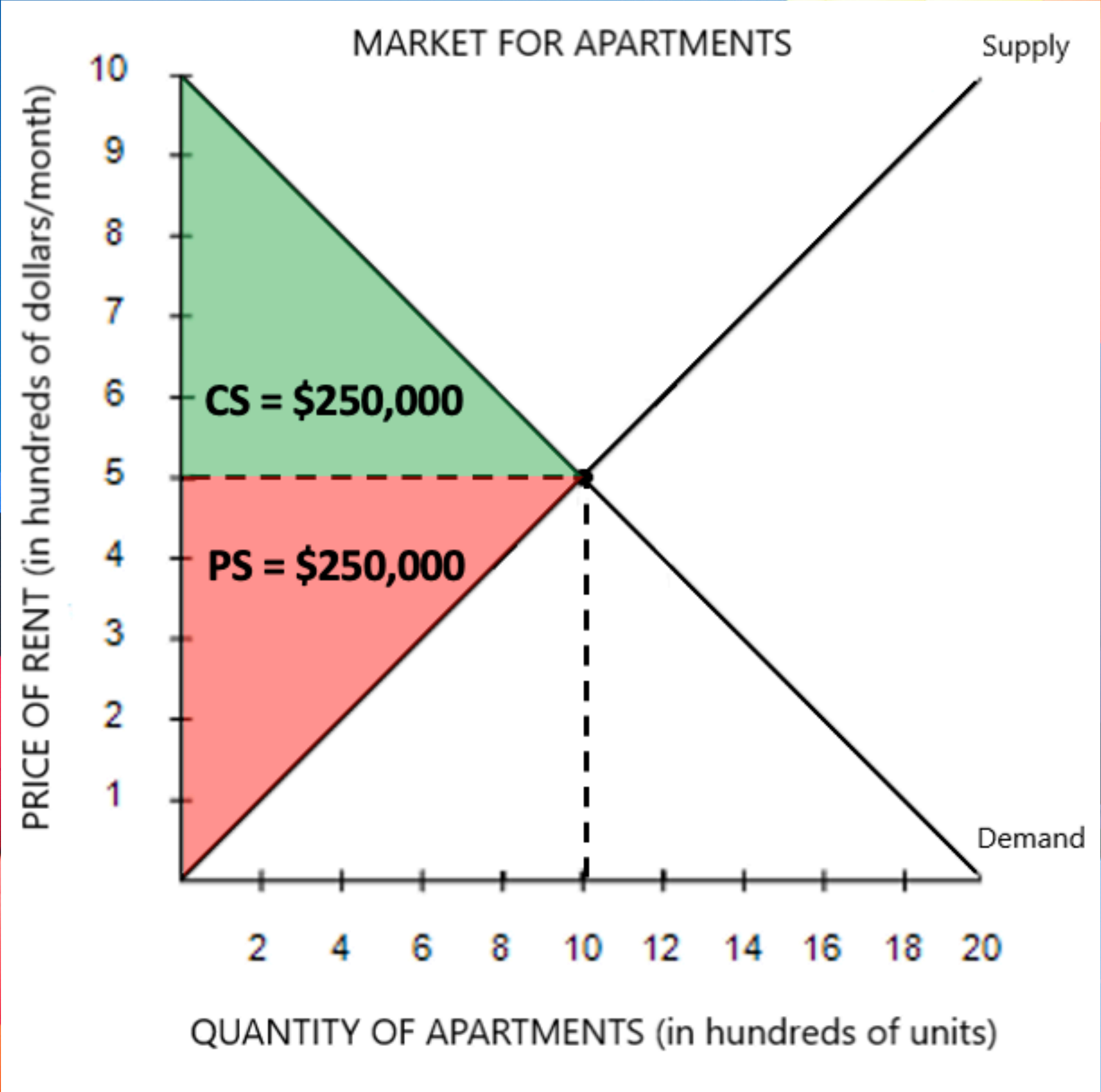


Price Ceiling: Rent-Control Law

- Assume the market for apartments is in equilibrium...
 - 2. Label and calculate the consumer and producer surplus.

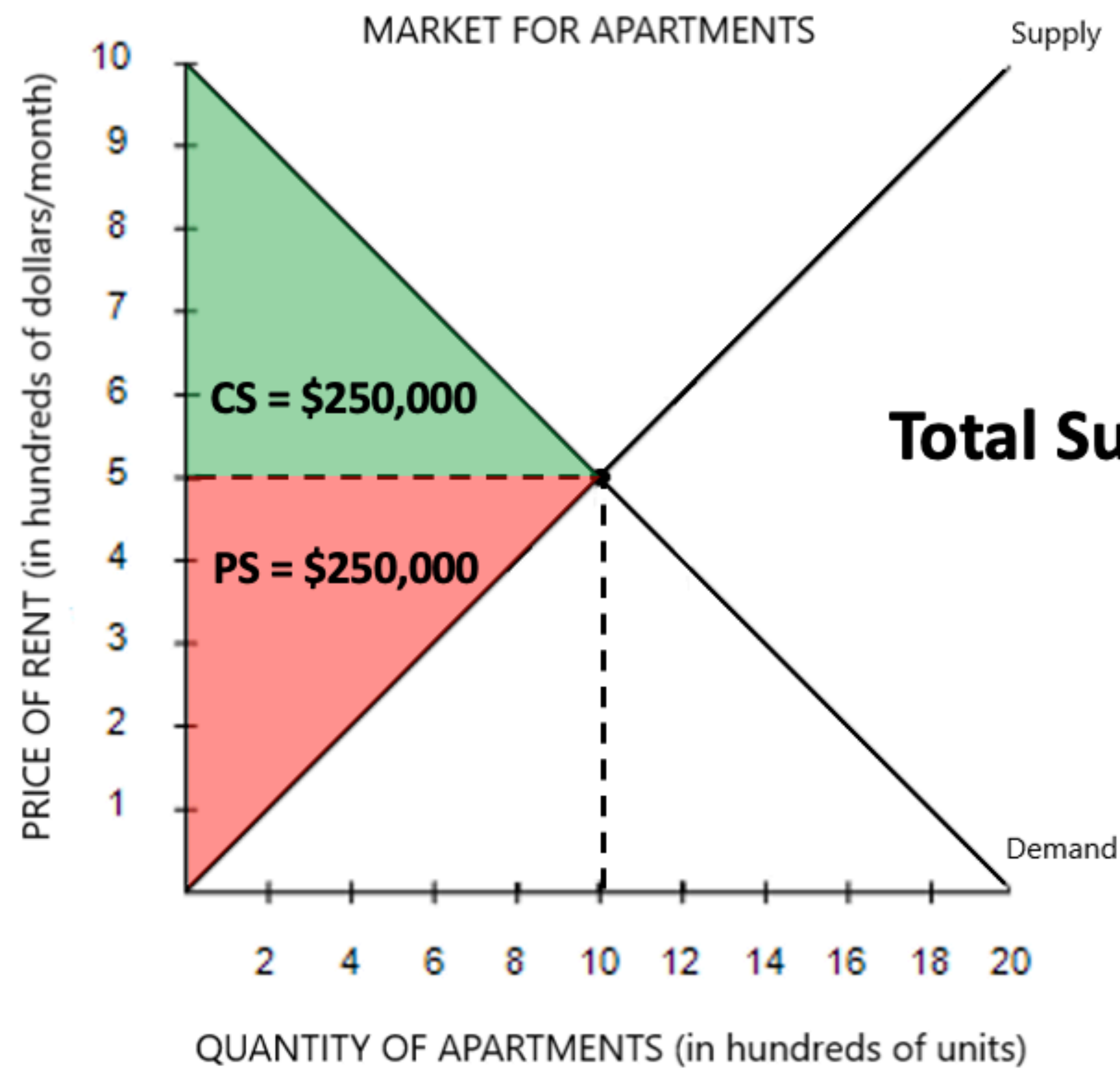






Price Ceiling: Rent-Control Law

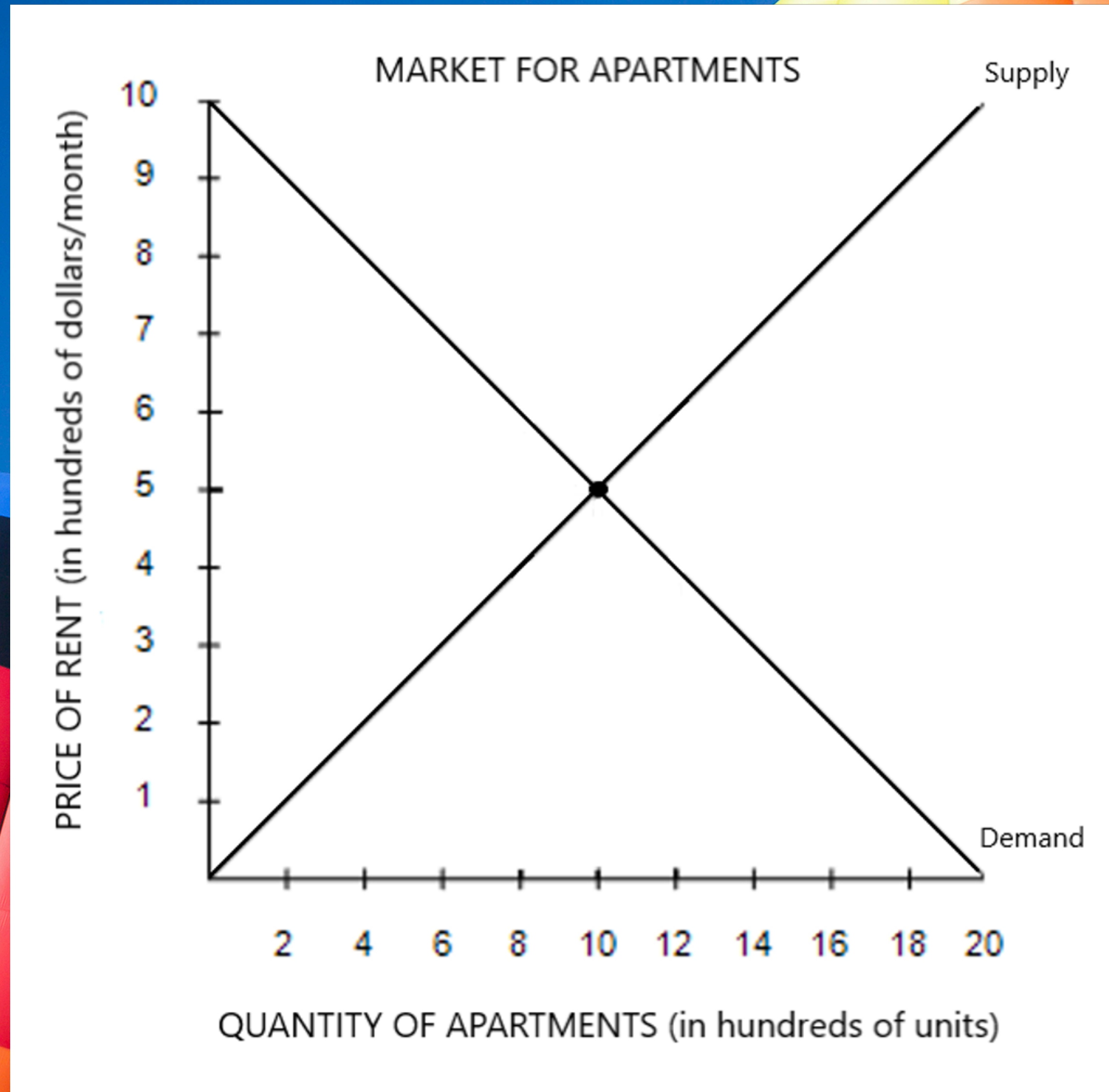
- Assume the market for apartments is in equilibrium...
 - 3. Calculate the total surplus.

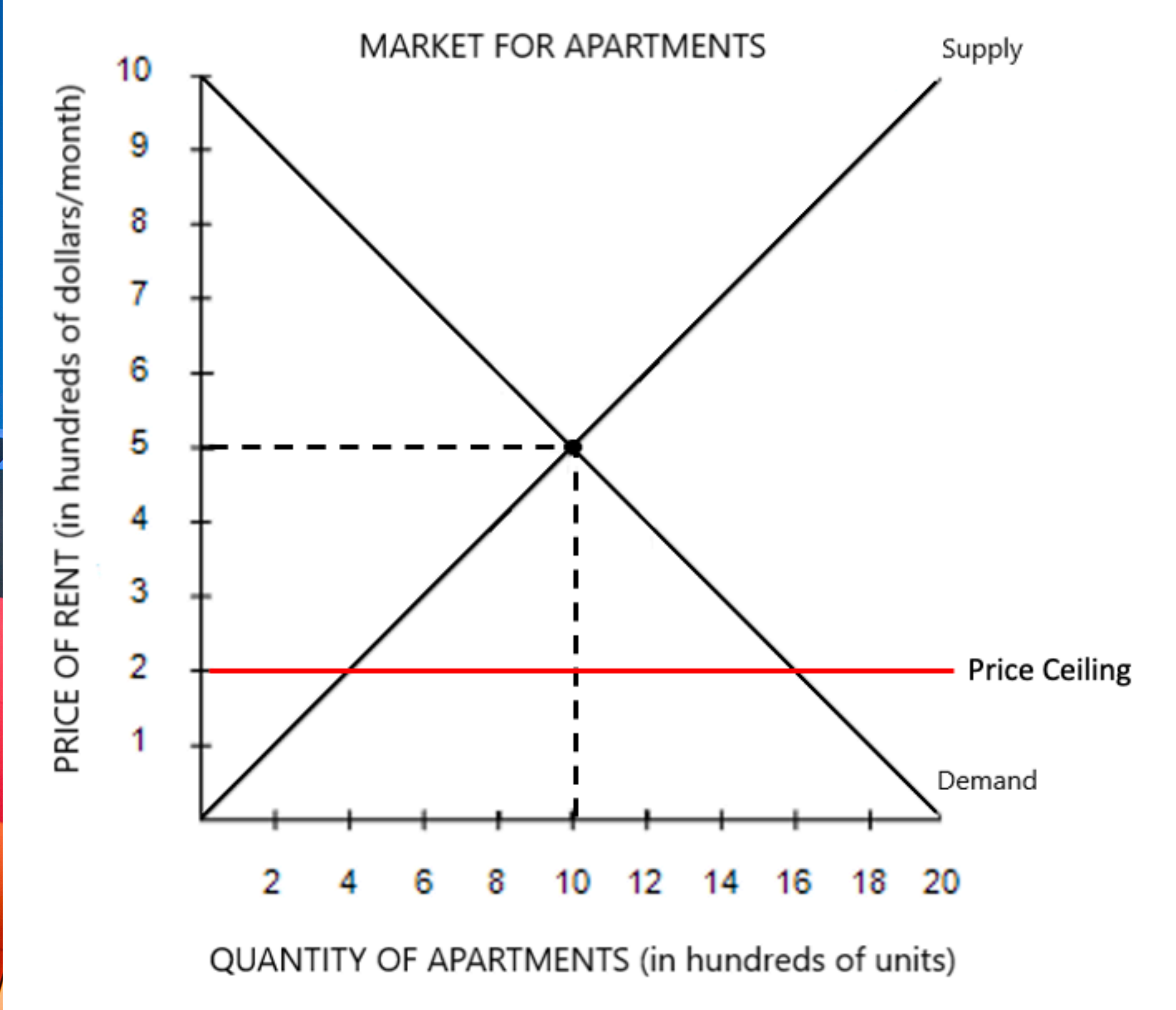


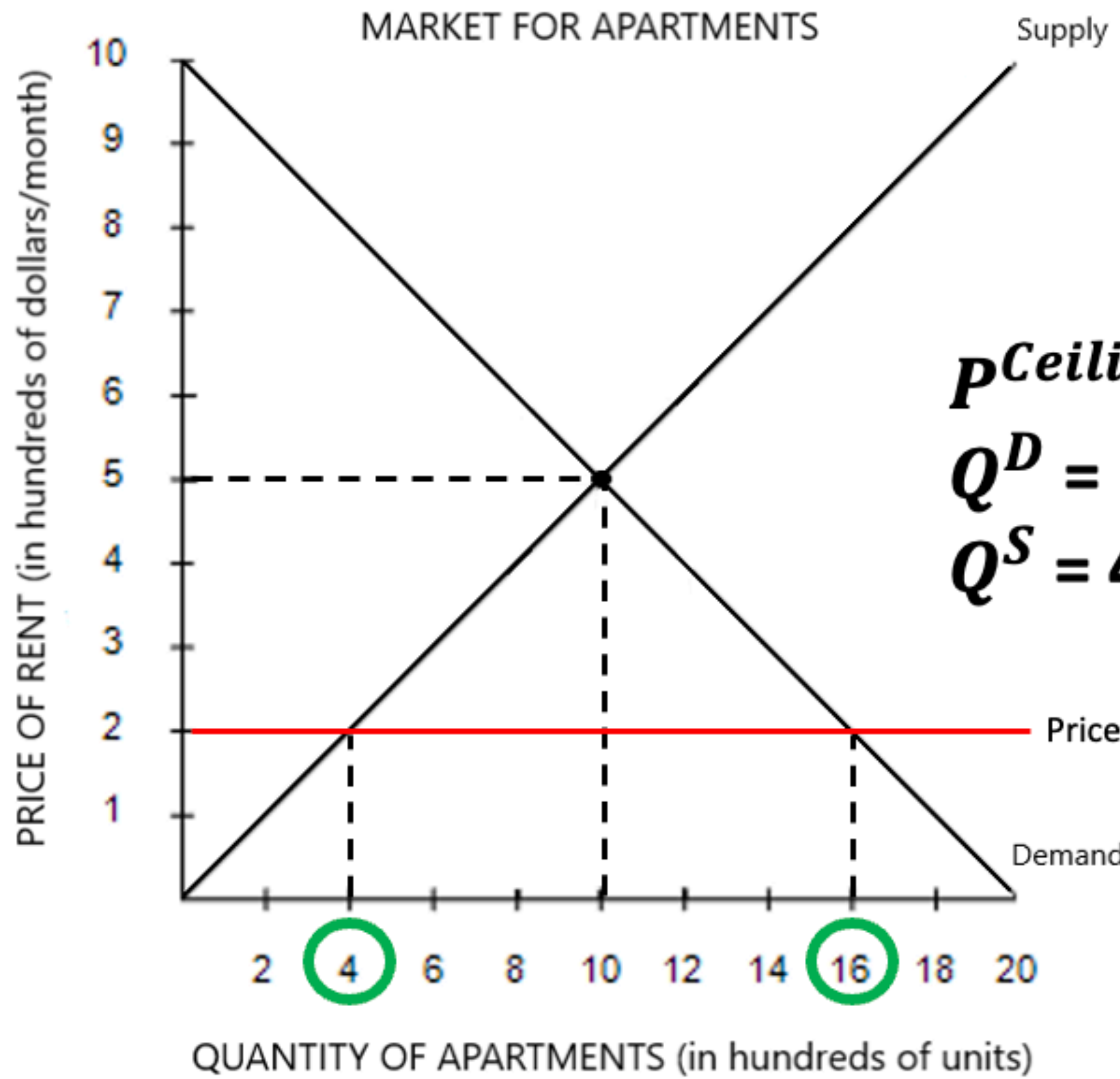
Total Surplus = \$500,000

Price Ceiling: Rent-Control Law

- Suppose policymakers create a law that implements a price ceiling on rent for apartments of \$200/month ...
 - 4. What is the price & quantity under the new law?



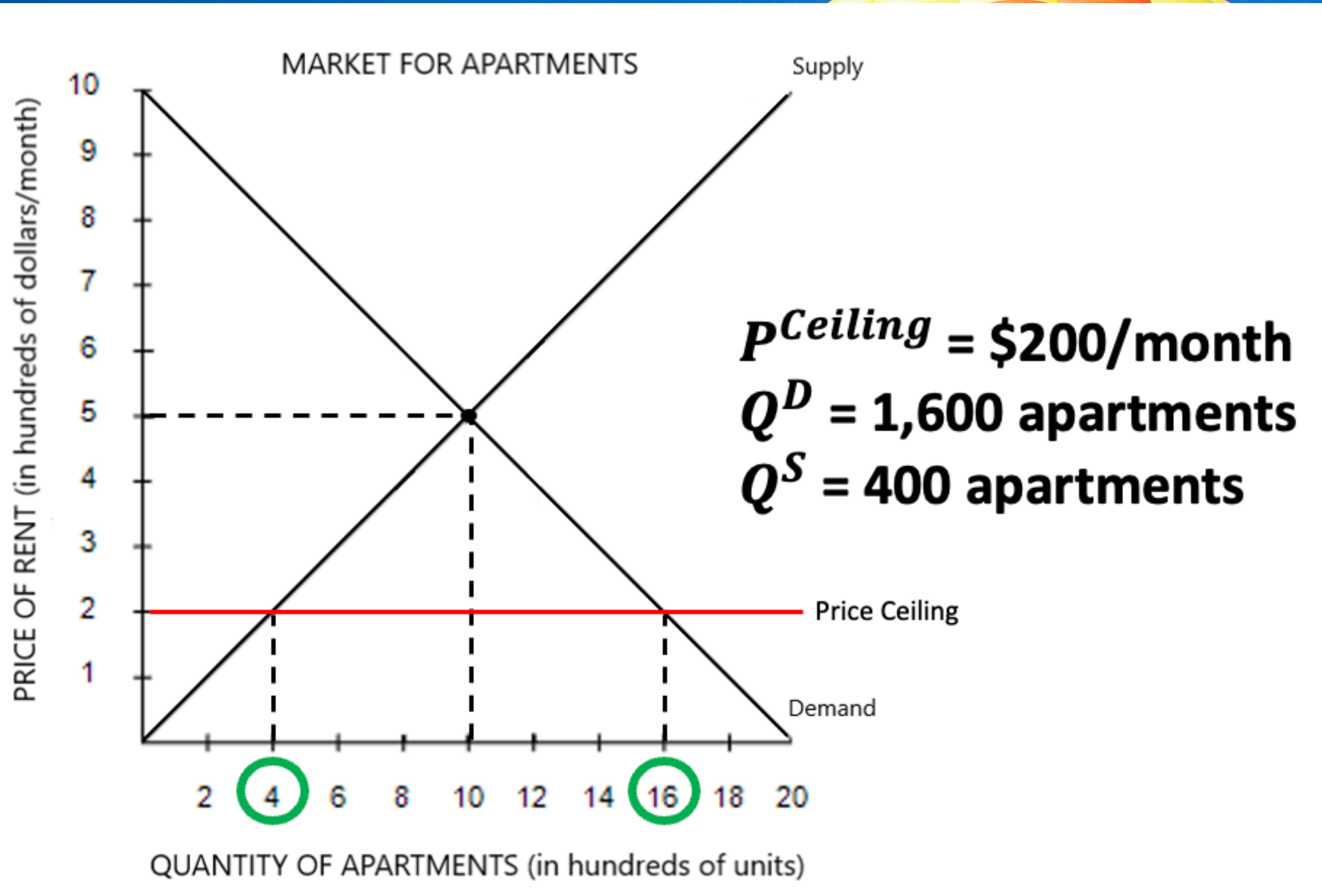


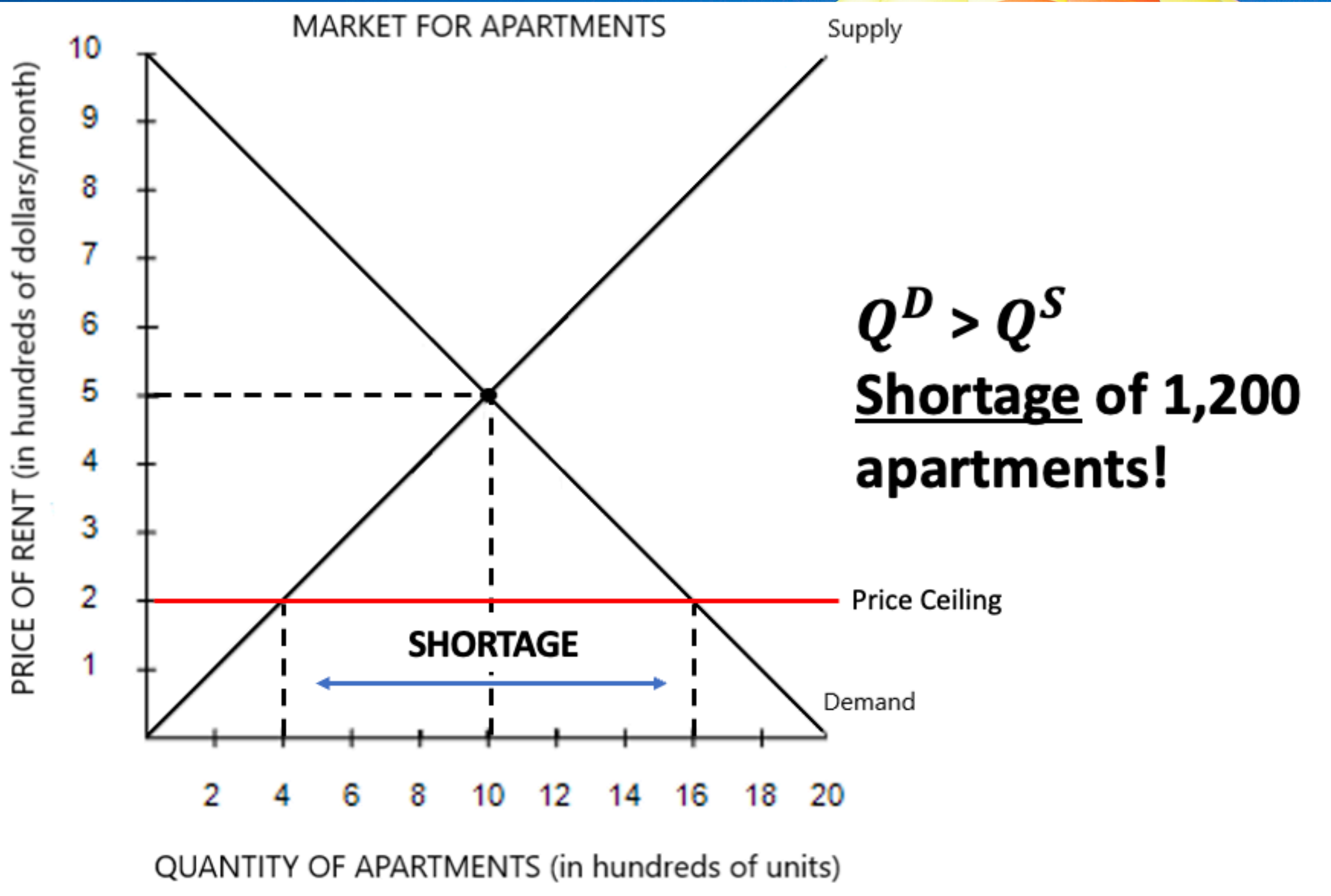


$P^{Ceiling} = \$200/\text{month}$
 $Q^D = 1,600$ apartments
 $Q^S = 400$ apartments

Price Ceiling: Rent-Control Law

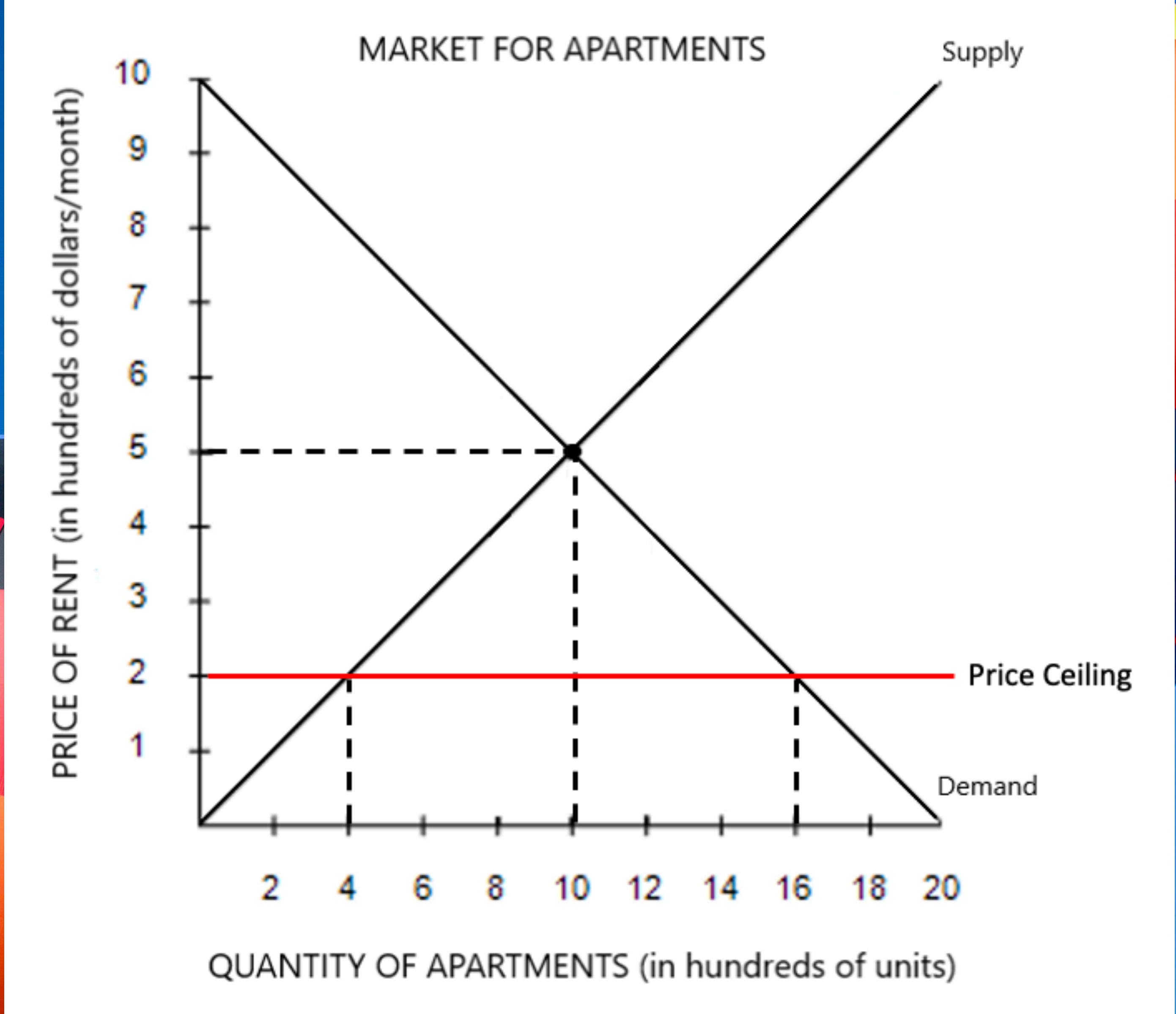
- Suppose policymakers create a law that implements a price ceiling on rent for apartments of \$200/month ...
 - 5. What is the effect of the rent-control law?

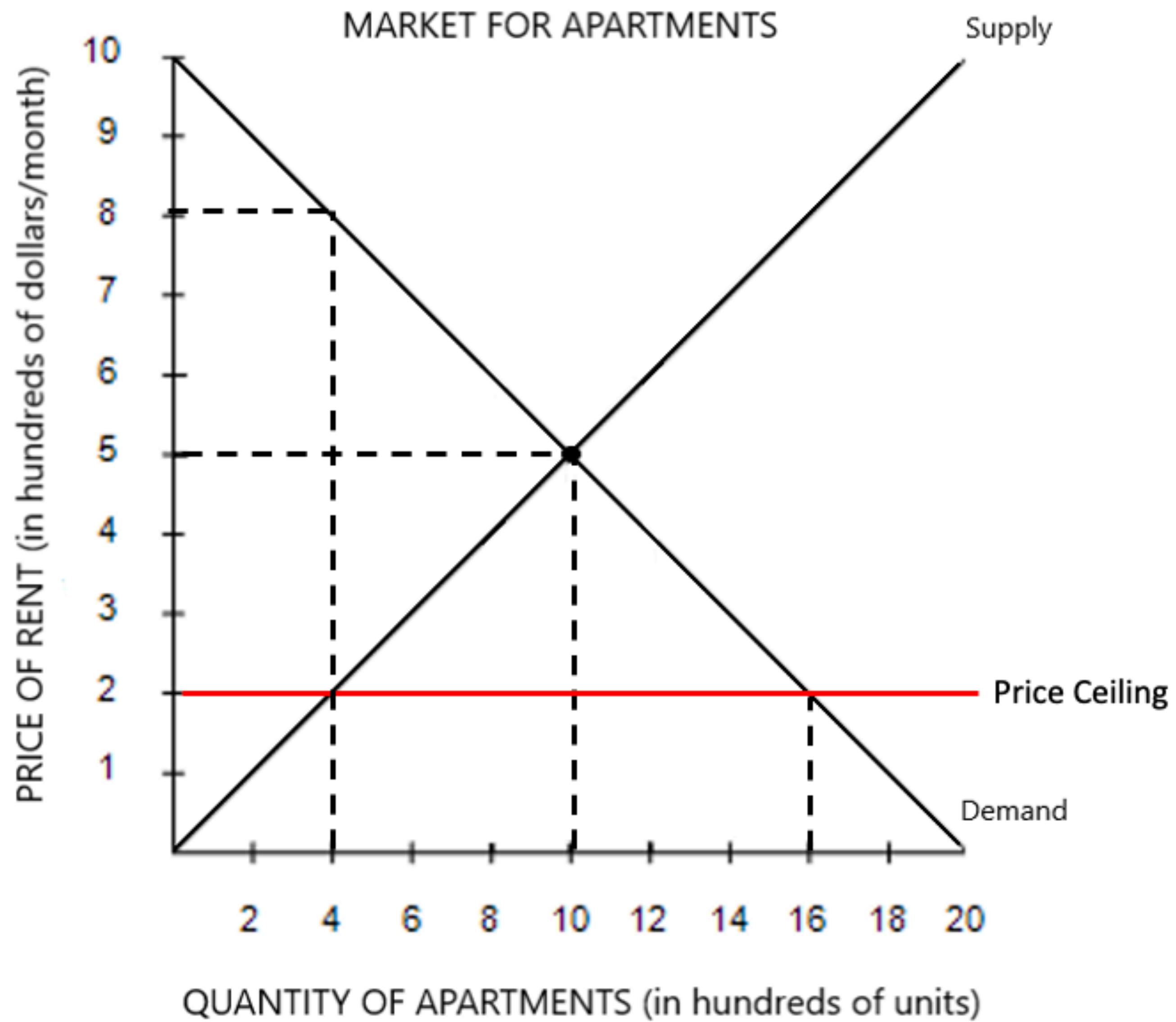




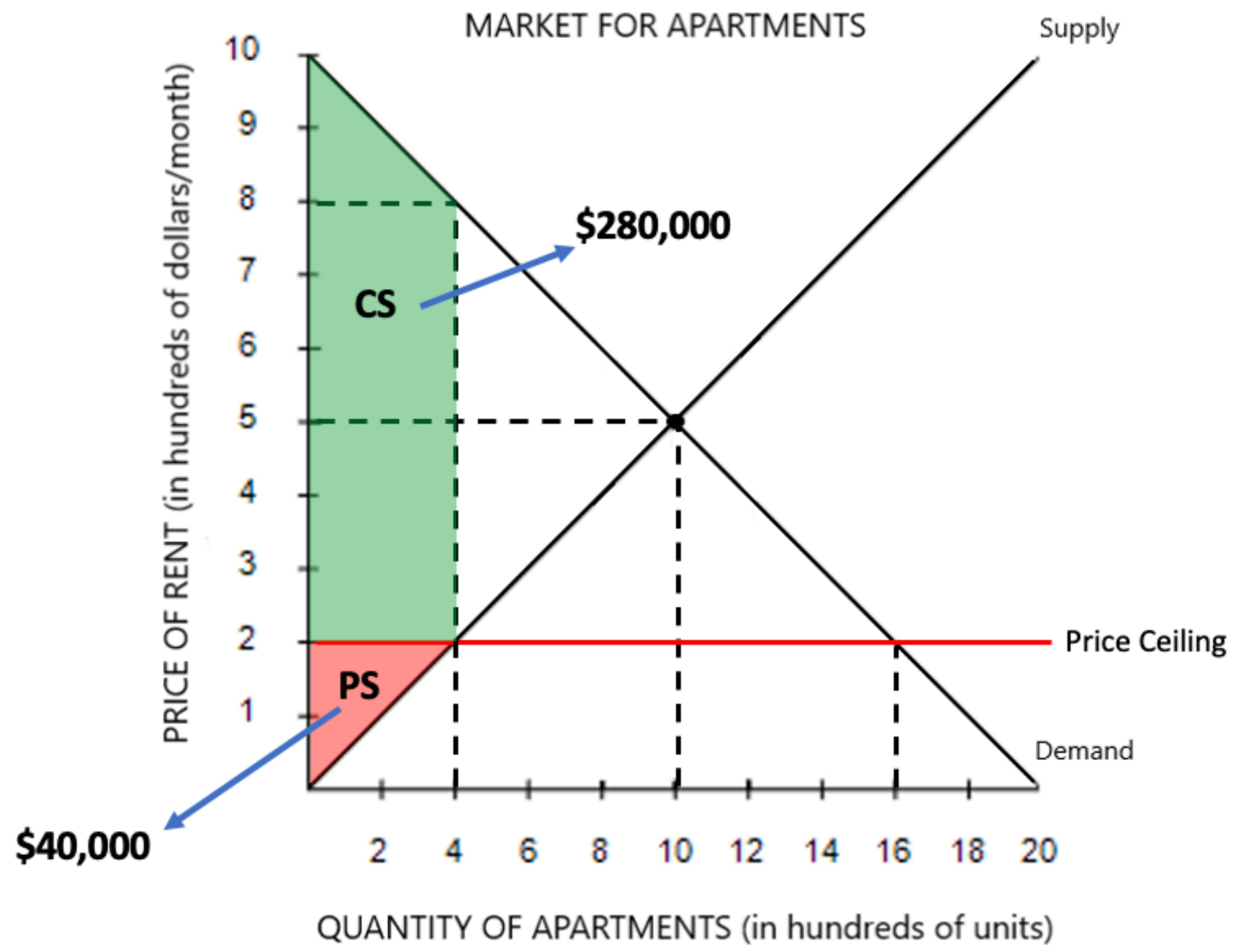
Price Ceiling: Rent-Control Law

- Suppose policymakers create a law that implements a price ceiling on rent for apartments of \$200/month ...
 - 6. Label & calculate the new consumer & producer surplus.



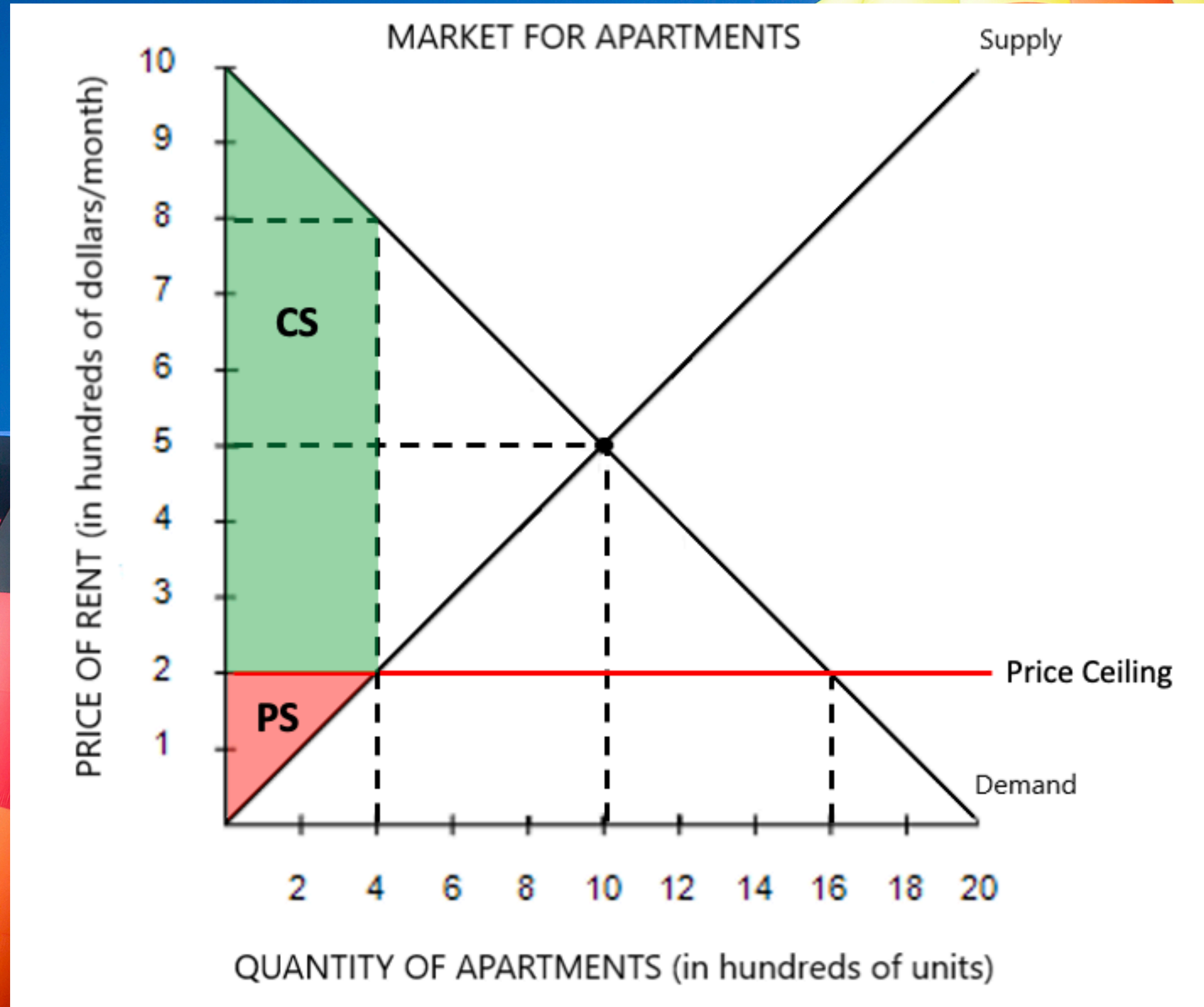


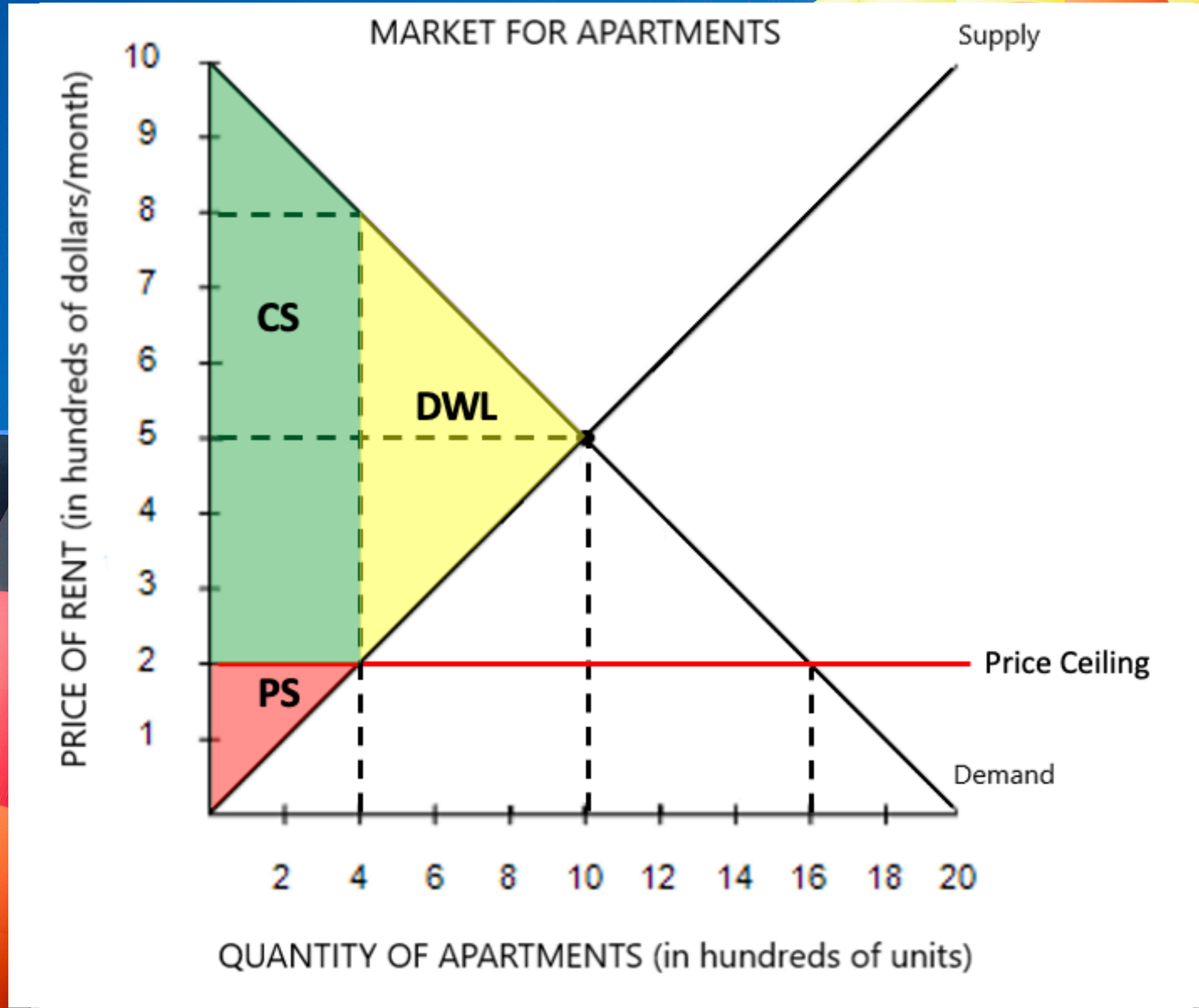


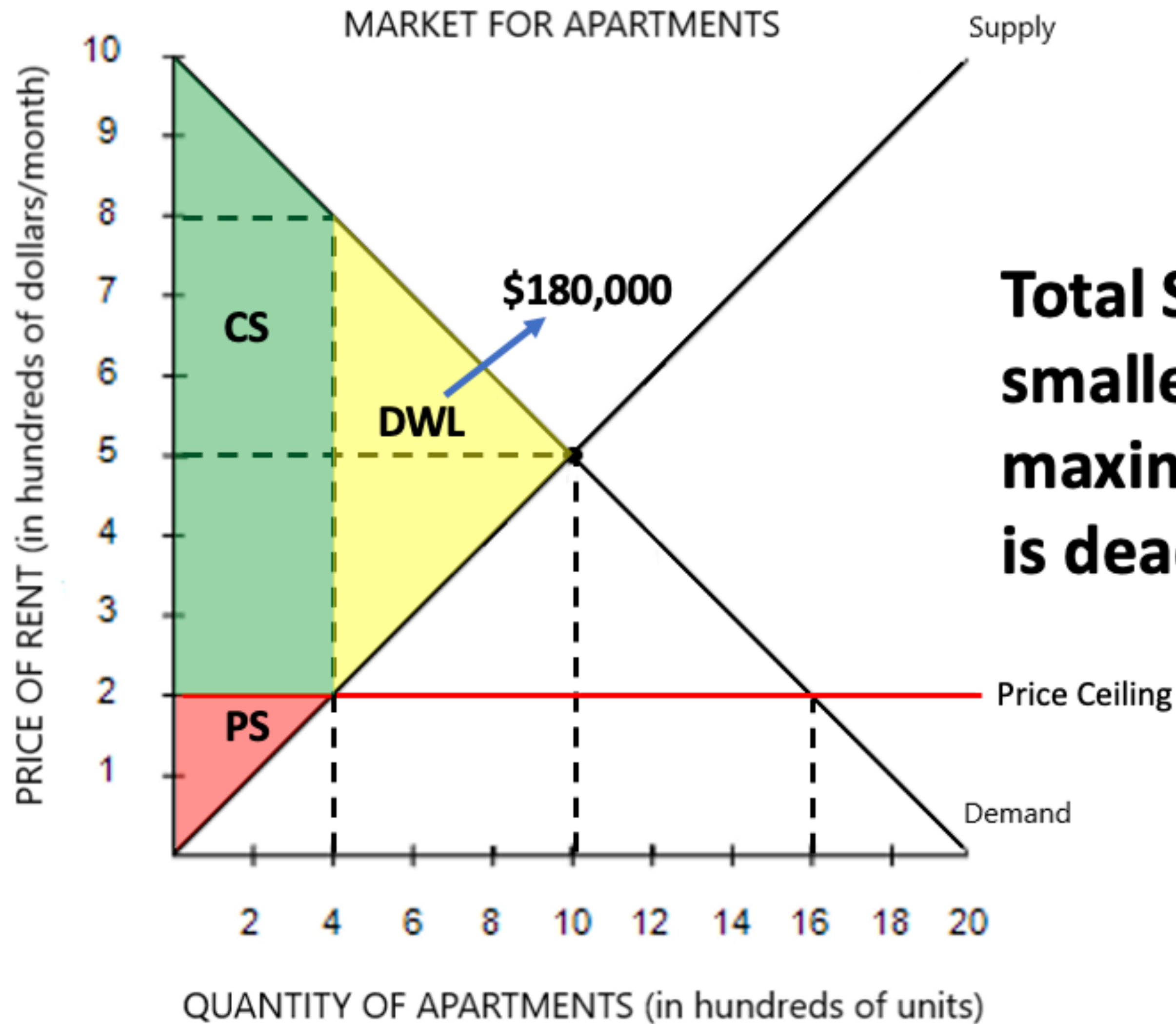


Price Ceiling: Rent-Control Law

- Suppose policymakers create a law that implements a price ceiling on rent for apartments of \$200/month ...
 - 7. What happens to the total surplus in the market? Label & calculate the deadweight loss.







Total Surplus is smaller (no longer maximized). There is deadweight loss!

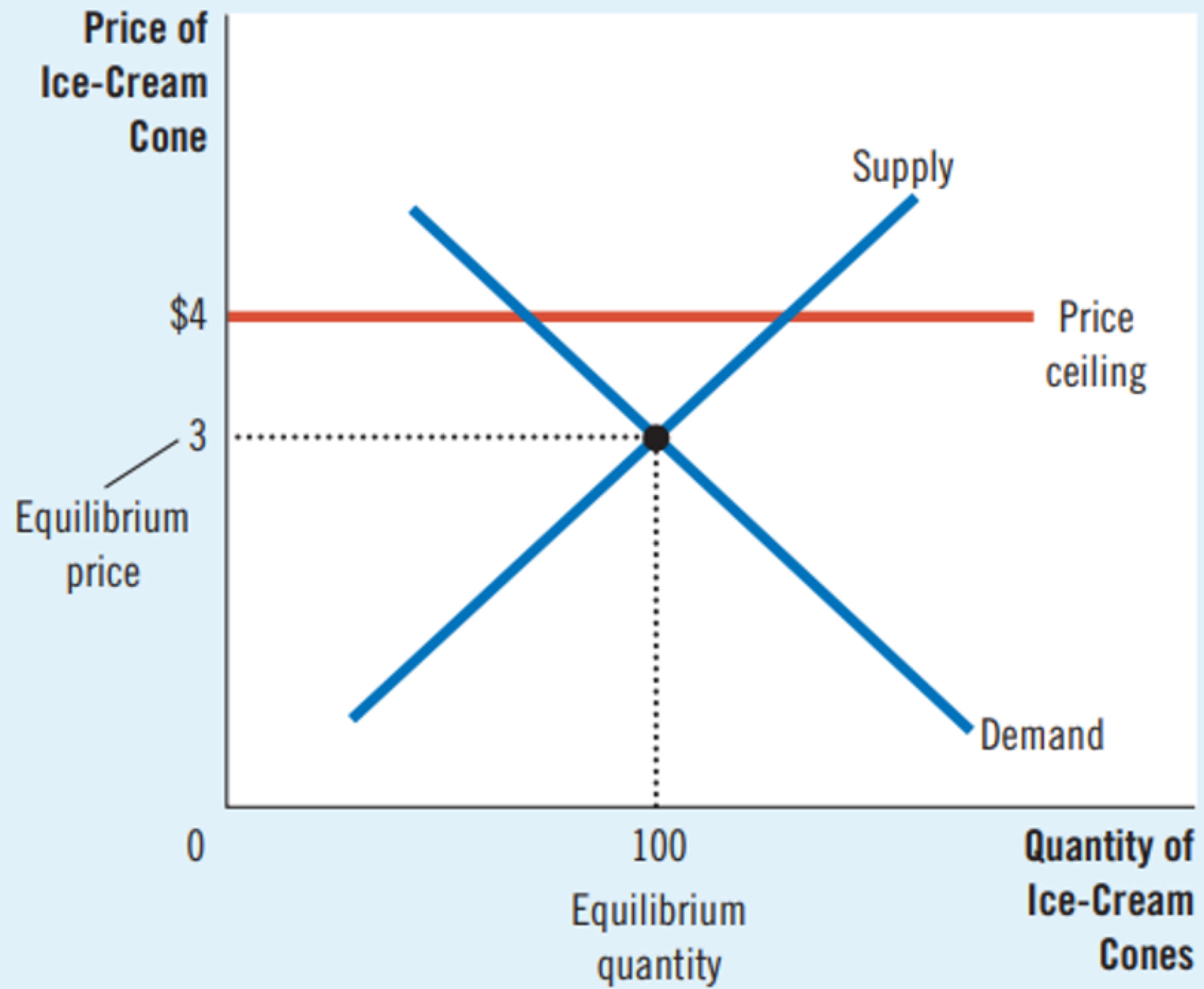
Price Ceiling: Rent-Control Law

- The price ceiling caused a shortage of apartments.
- Who stands to **benefit** from the price ceiling?
 - Some consumers who get to rent apartments at a lower price.
- At whose expense?
 - **Other** consumers don't get to rent apartments at all.
 - **Producers** that don't get to rent apartments, or those that do rent, but must accept a lower price.

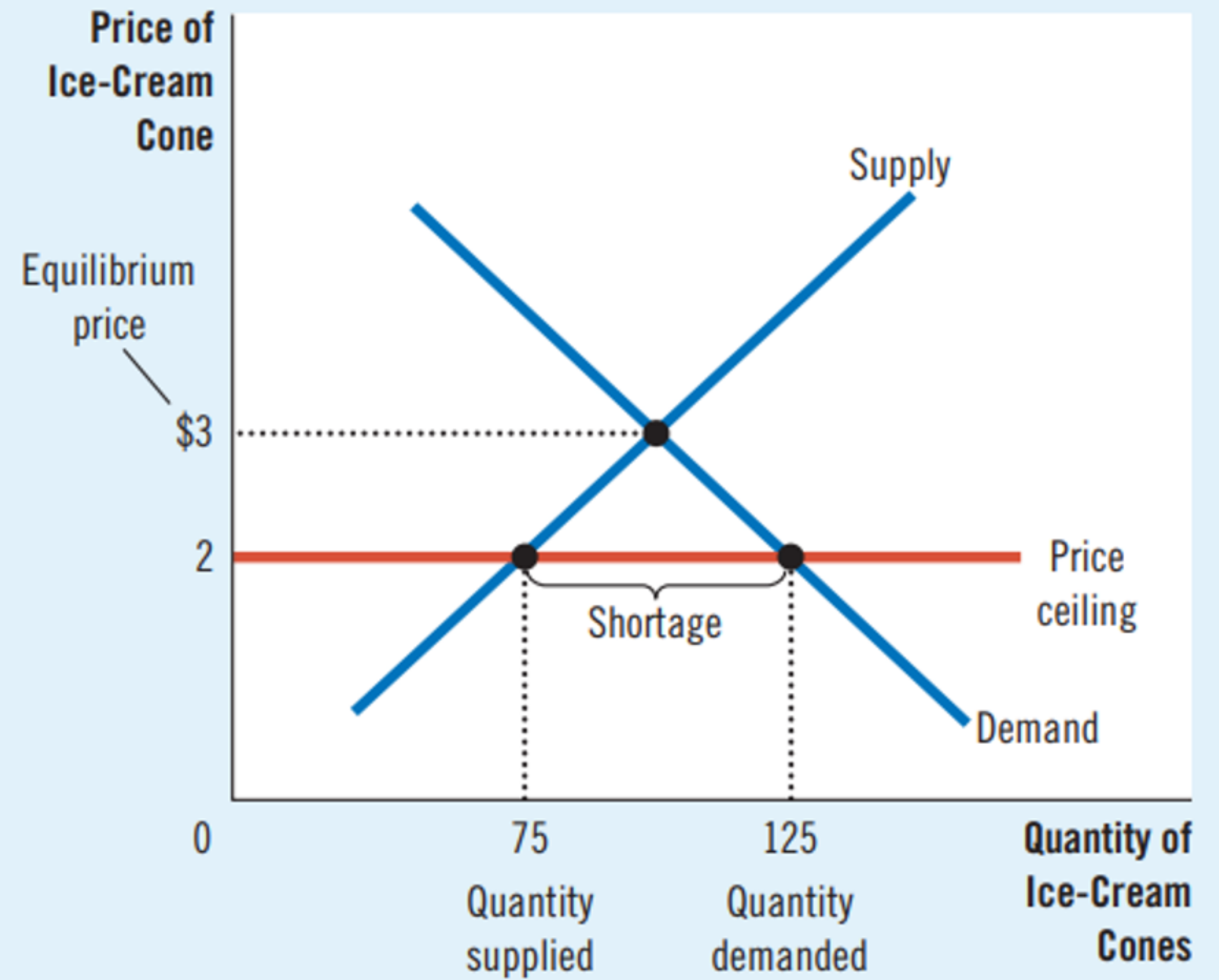
Binding vs. Non-Binding Ceiling

- Non-Binding Price Ceiling
 - When the ceiling is set above the equilibrium price.
 - No affect on equilibrium price & quantity.
- Binding Price Ceiling
 - When the floor is set below the equilibrium price.
 - Shortages persist.

(a) A Price Ceiling That Is Not Binding



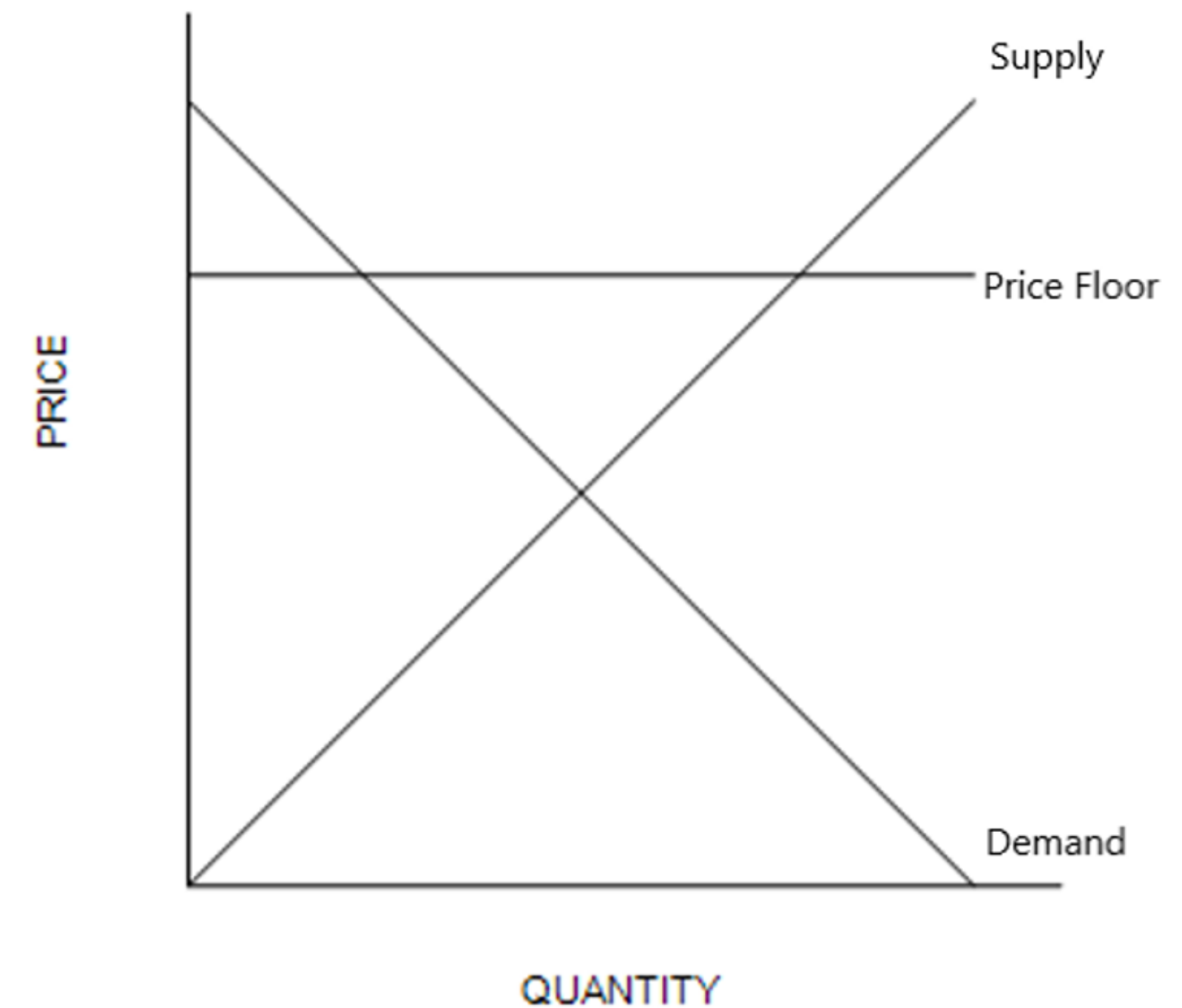
(b) A Price Ceiling That Is Binding



Price Floors

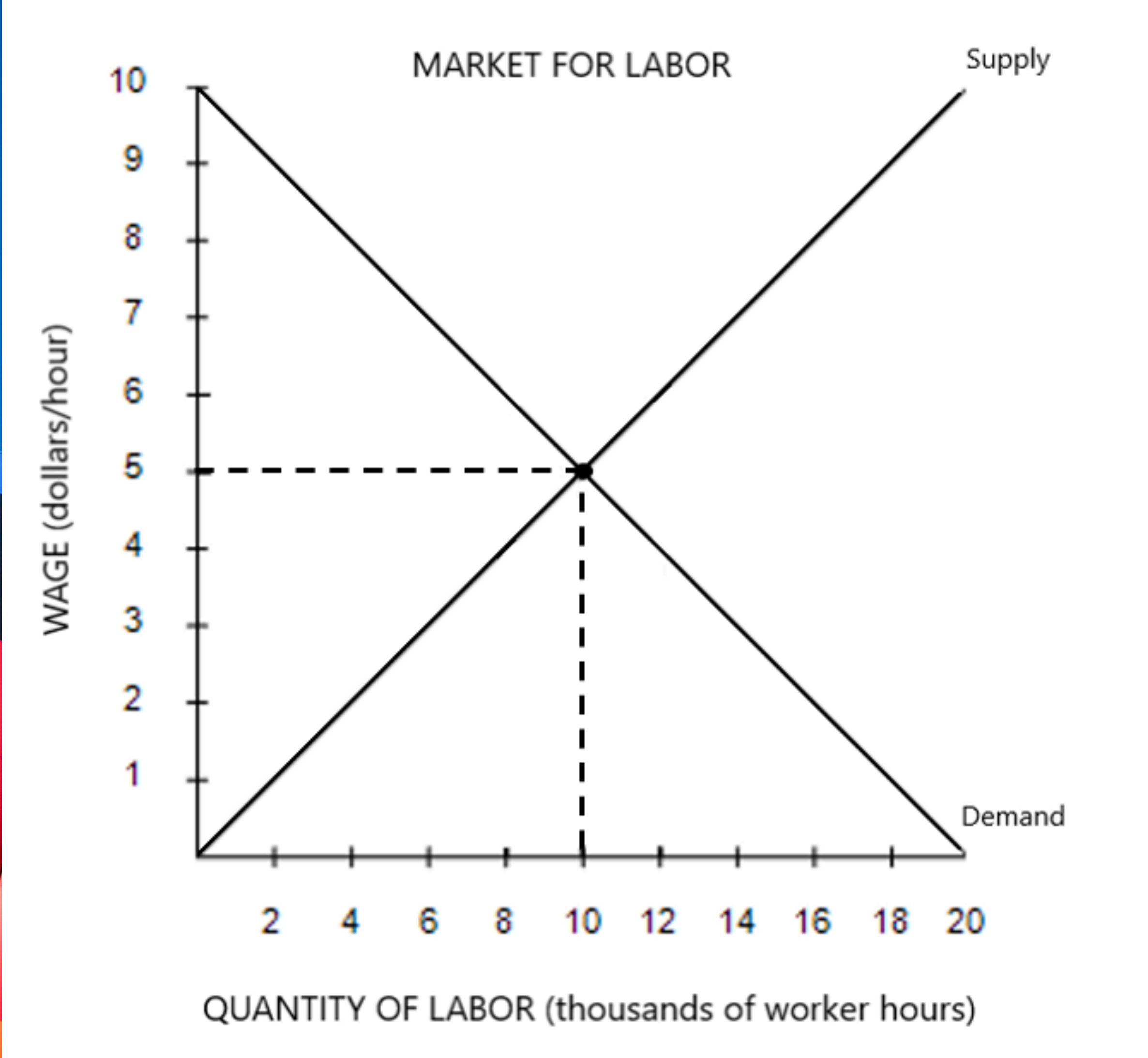
Price Floor

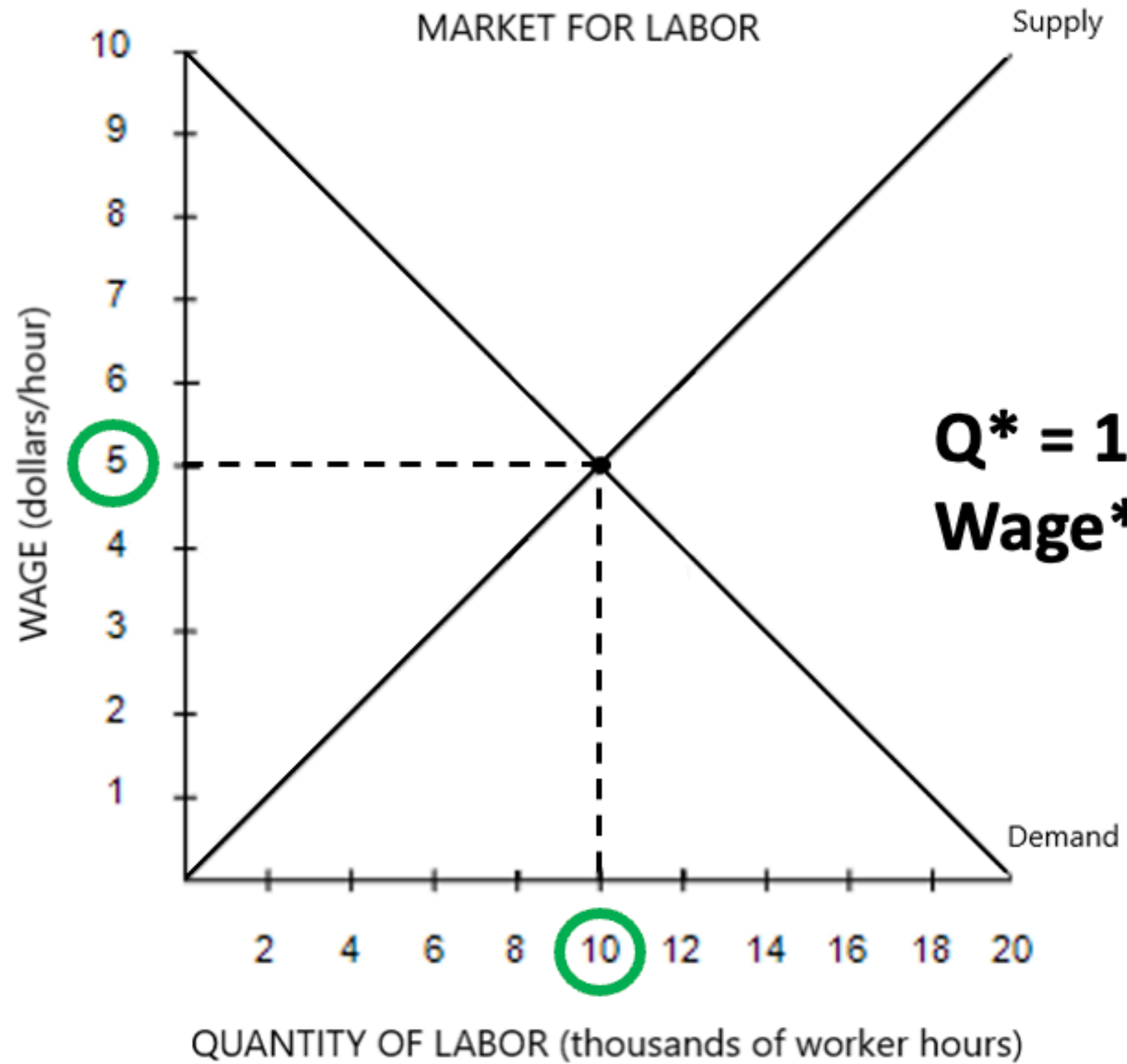
- A legal *minimum* on the price at which a good can be sold.
 - A price cannot fall below a certain point.
- Example: Minimum Wage Laws



Price Floor: Minimum Wage Law

- Assume the market for labor is in equilibrium...
 - 1. What is the equilibrium price & quantity?

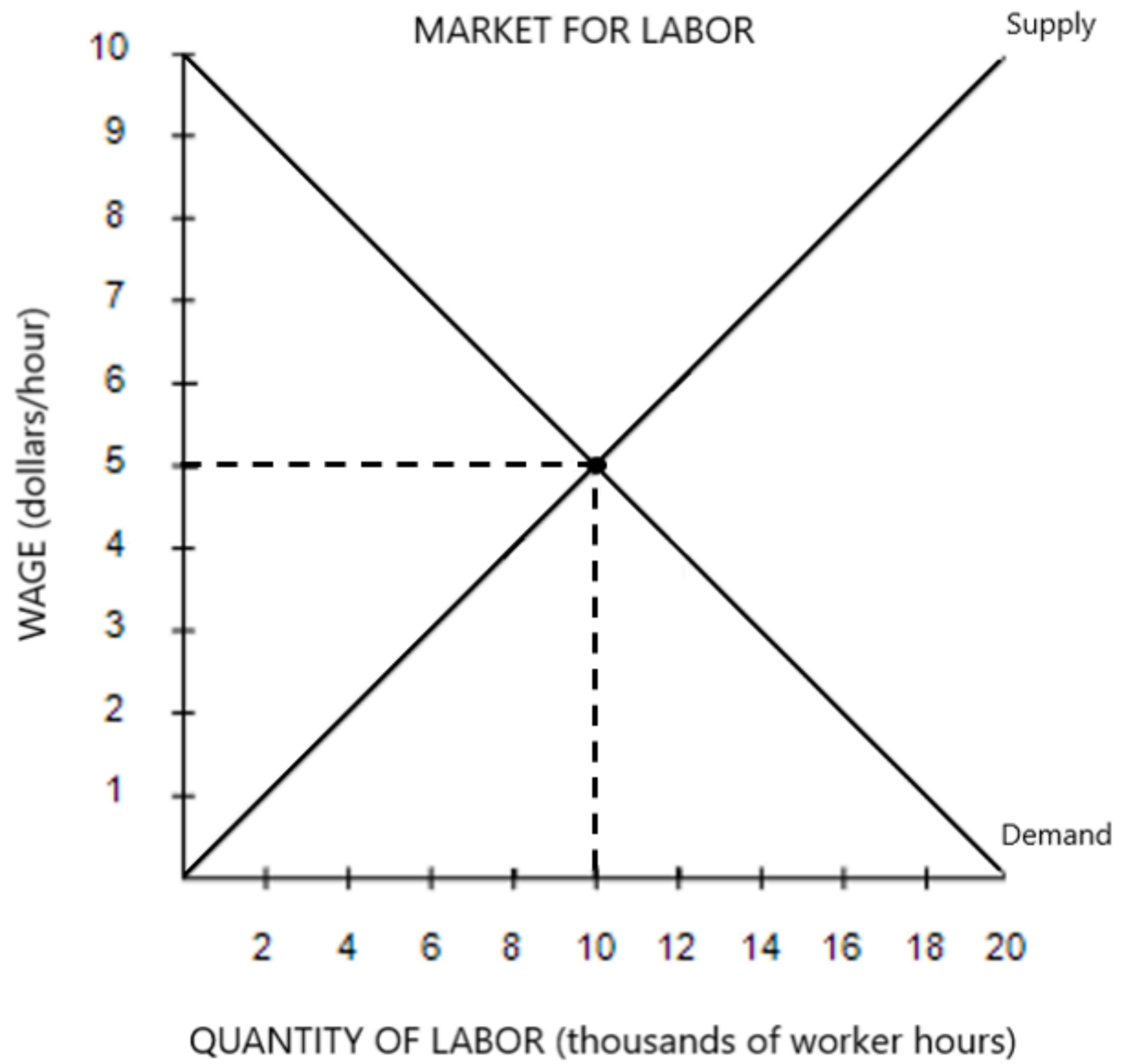


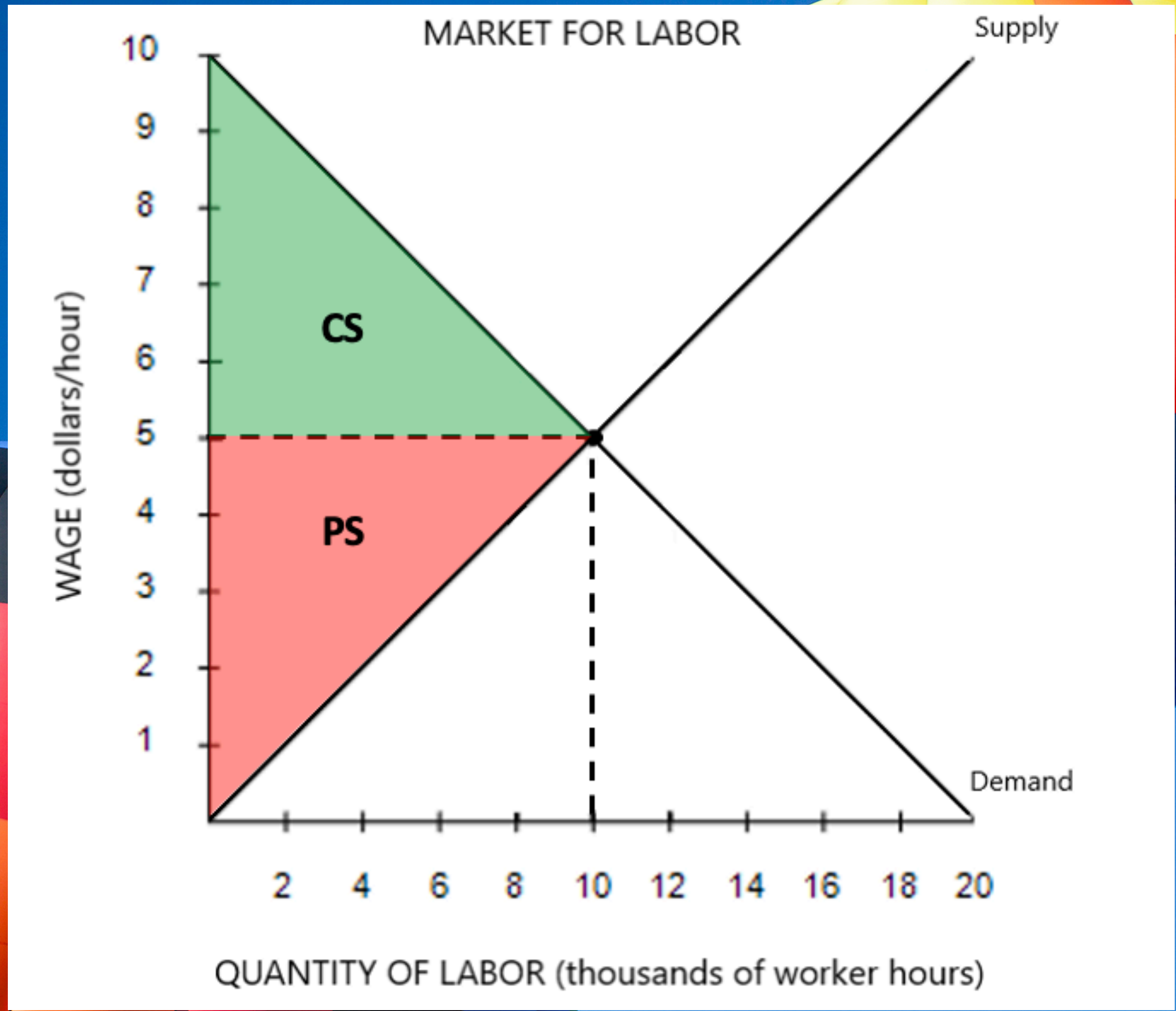


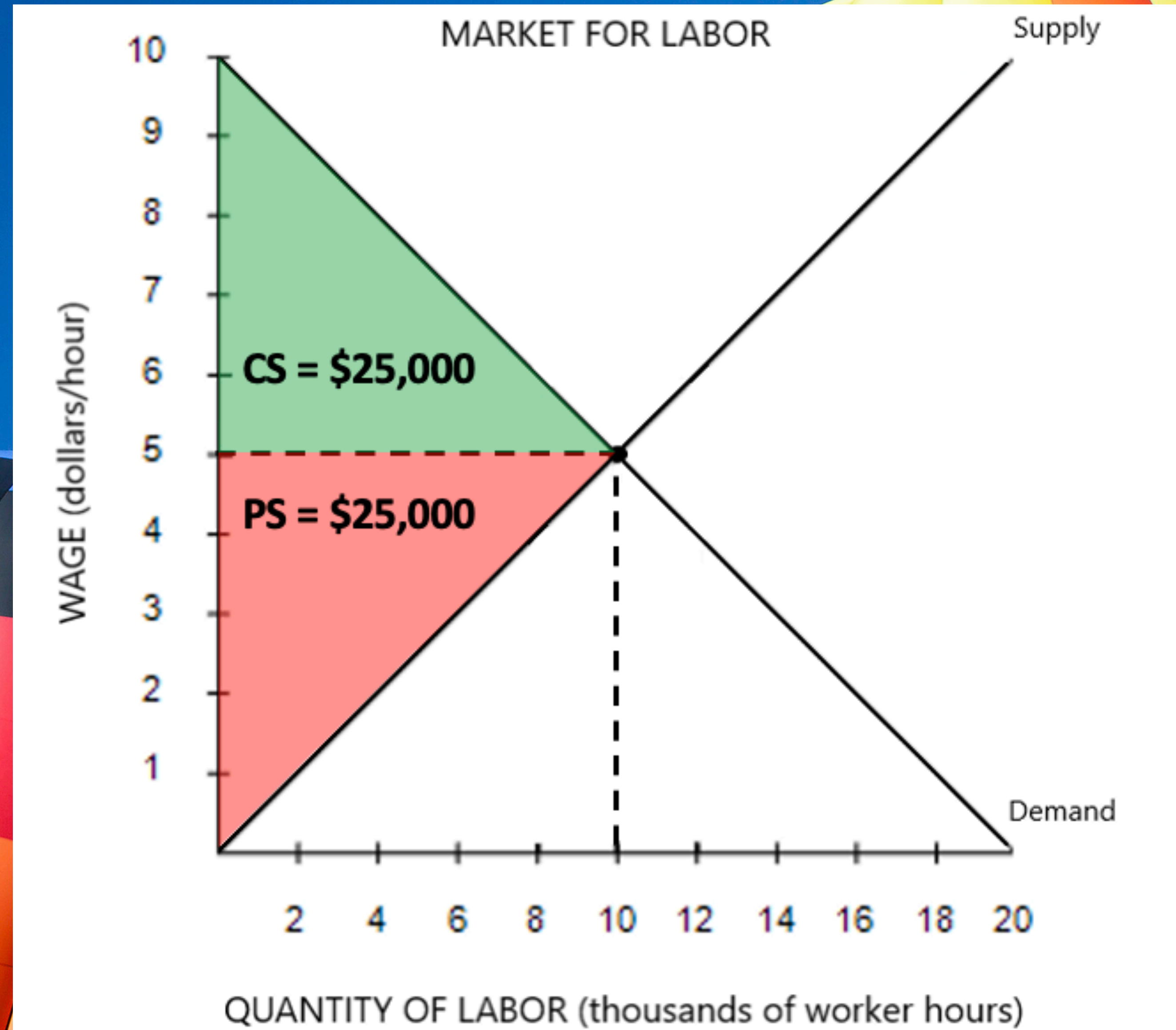
$Q^* = 10,000$ workers
 $Wage^* = \$5/\text{hour}$

Price Floor: Minimum Wage Law

- Assume the market for labor is in equilibrium...
 - 2. Label & calculate the consumer & producer surplus.

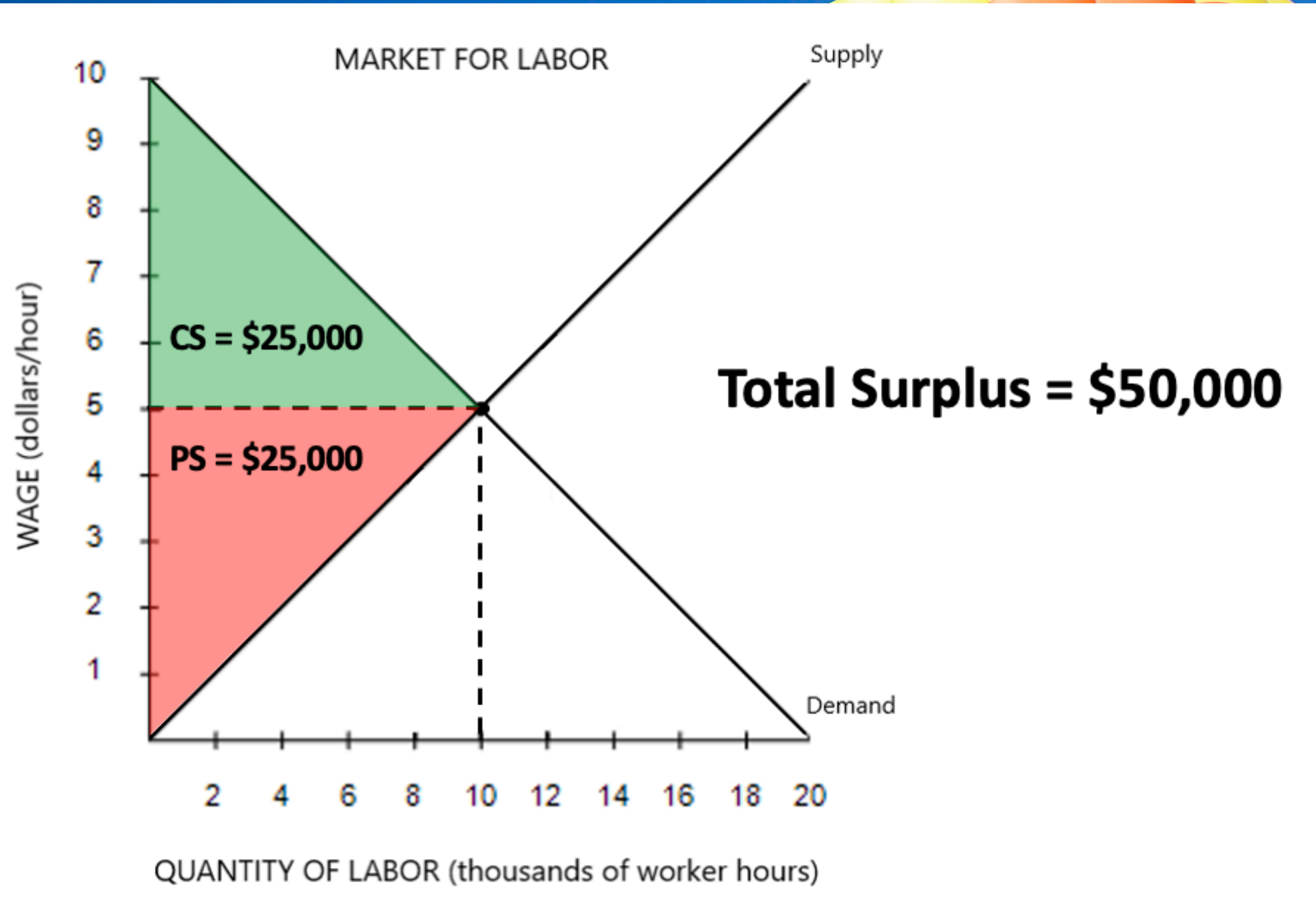






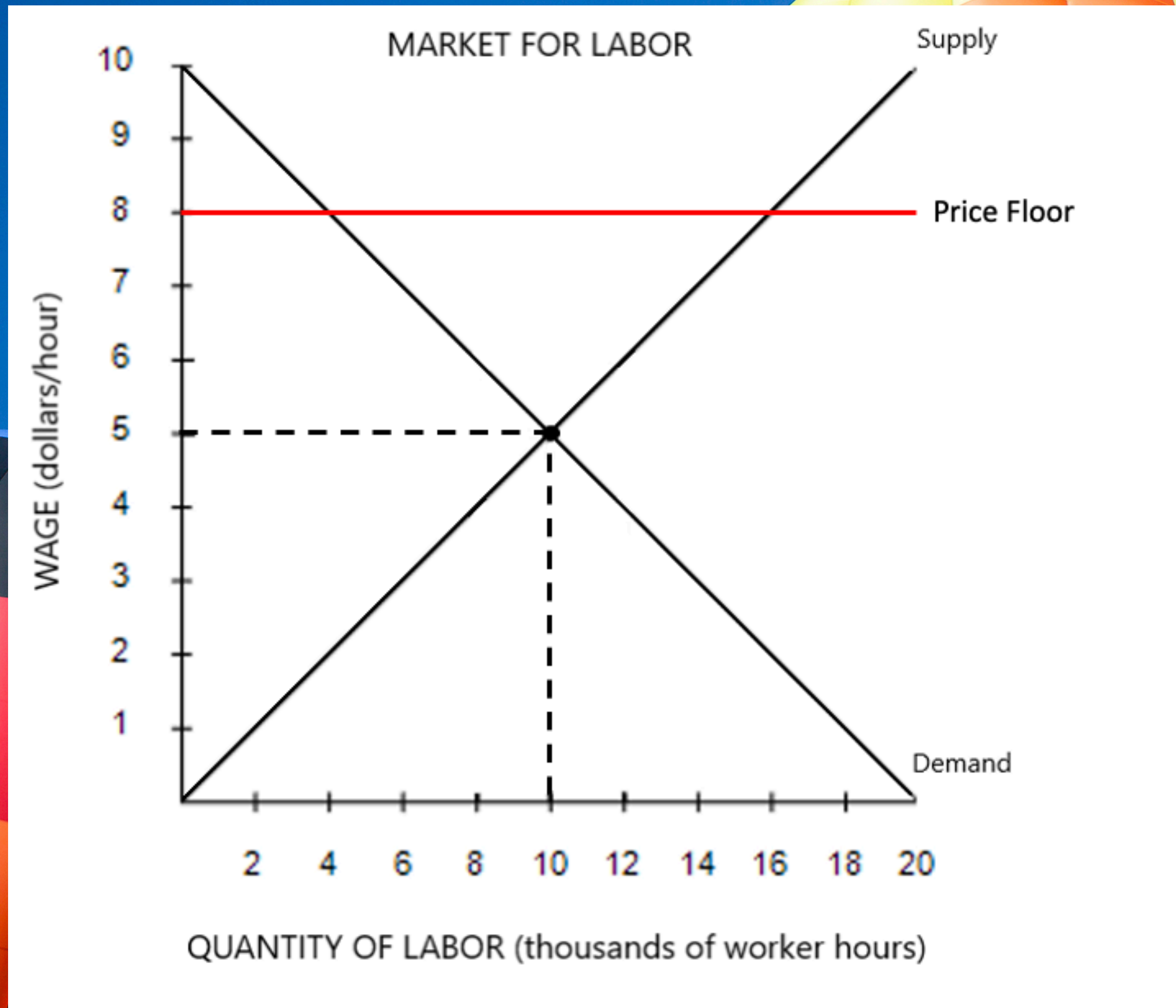
Price Floor: Minimum Wage Law

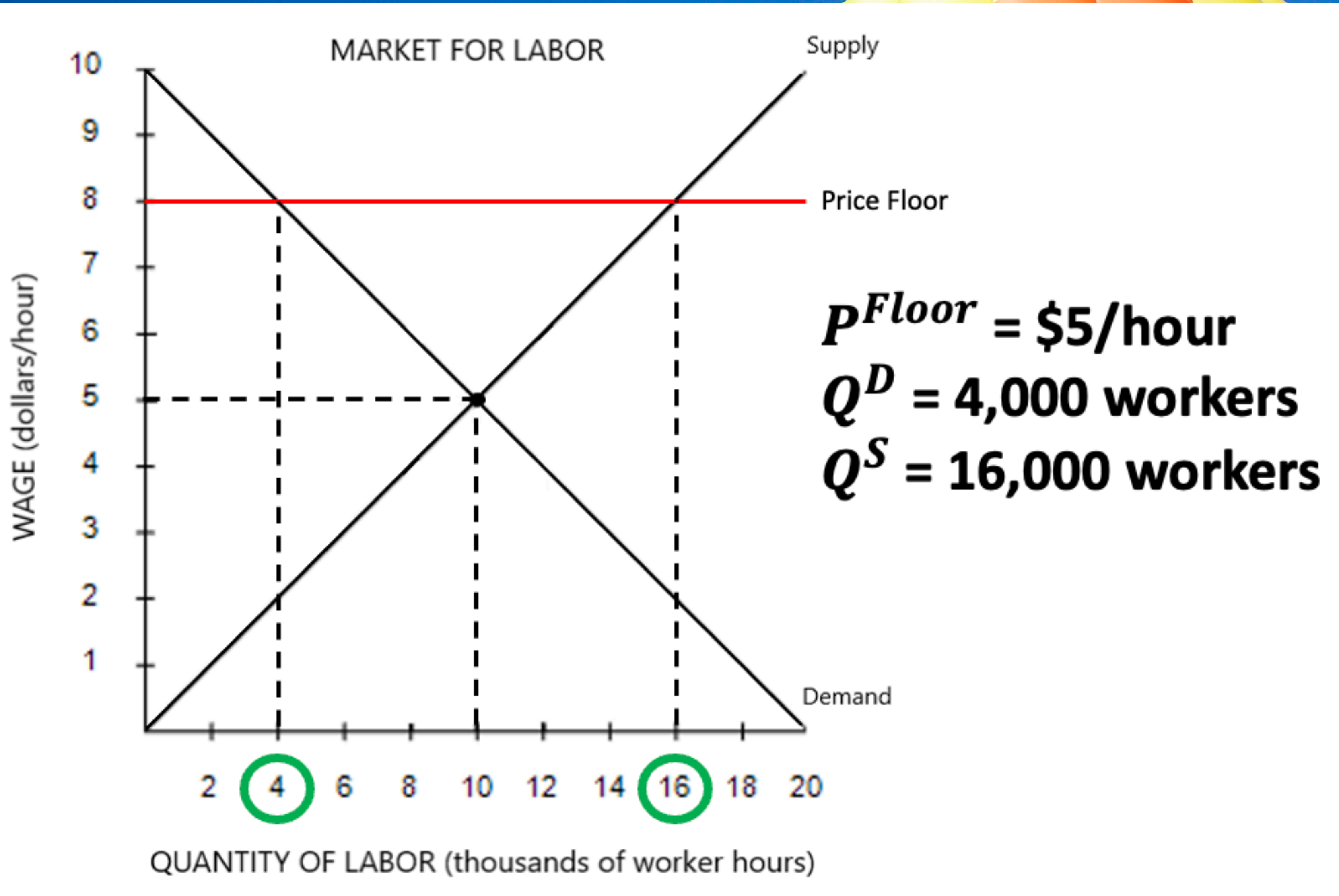
- Assume the market for labor is in equilibrium...
 - 3. Calculate the total surplus.



Price Floor: Minimum Wage Law

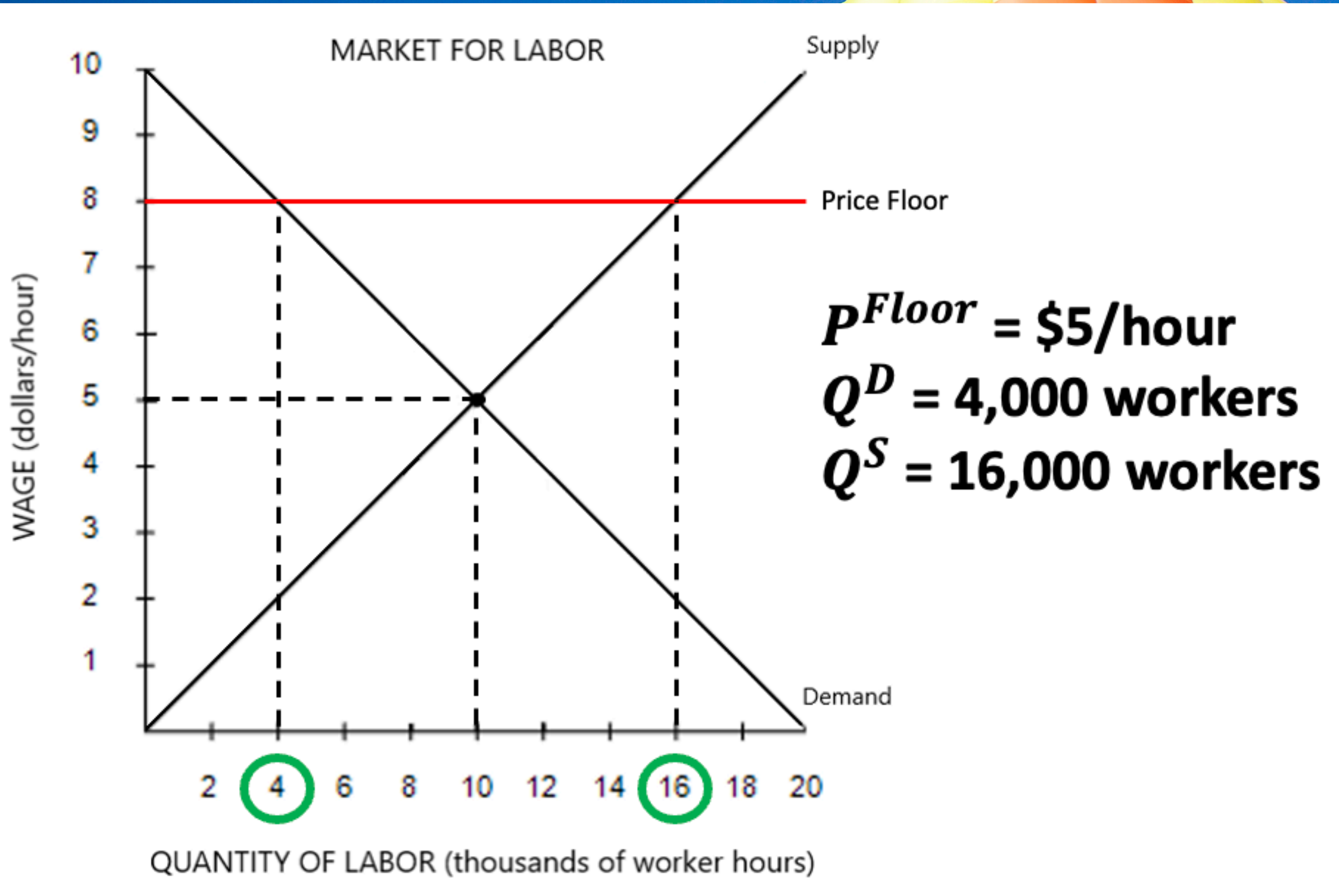
- Suppose that policymakers create a minimum wage law that implements a price floor of \$8/hour...
 - 4. What is the new price & quantity?

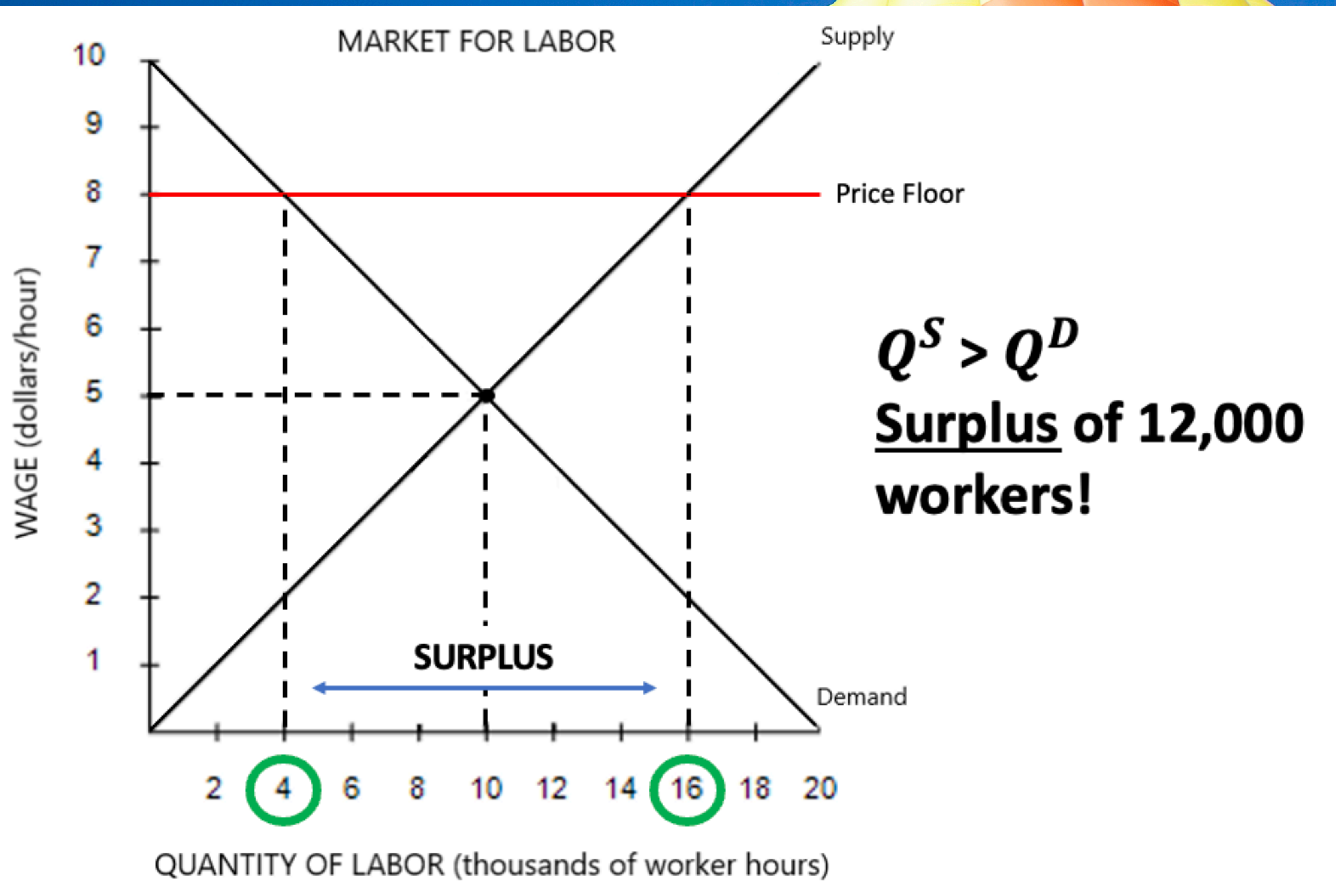


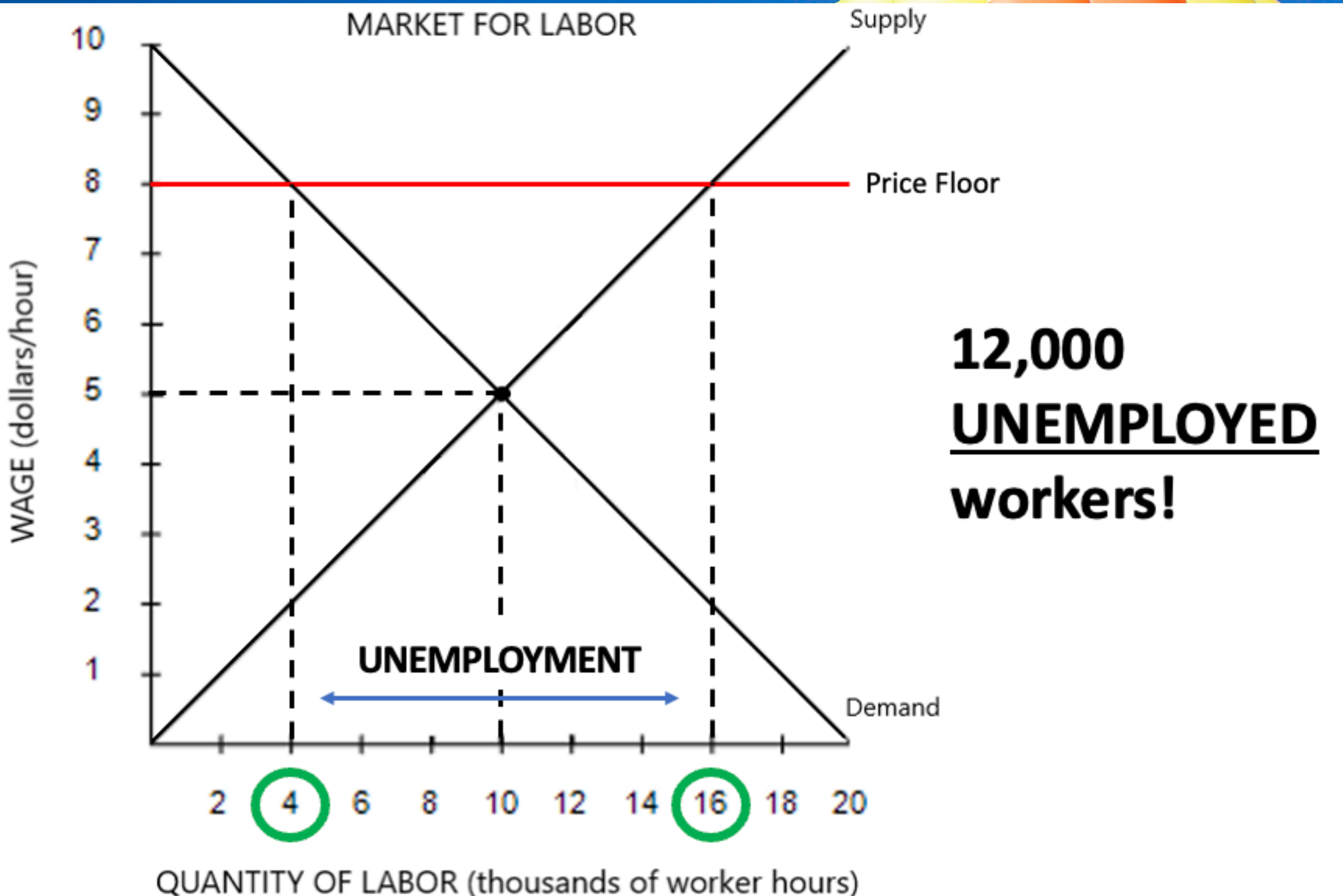


Price Floor: Minimum Wage Law

- Suppose that policymakers create a minimum wage law that implements a price floor of \$8/hour...
 - 5. What is the effect of the minimum wage law?





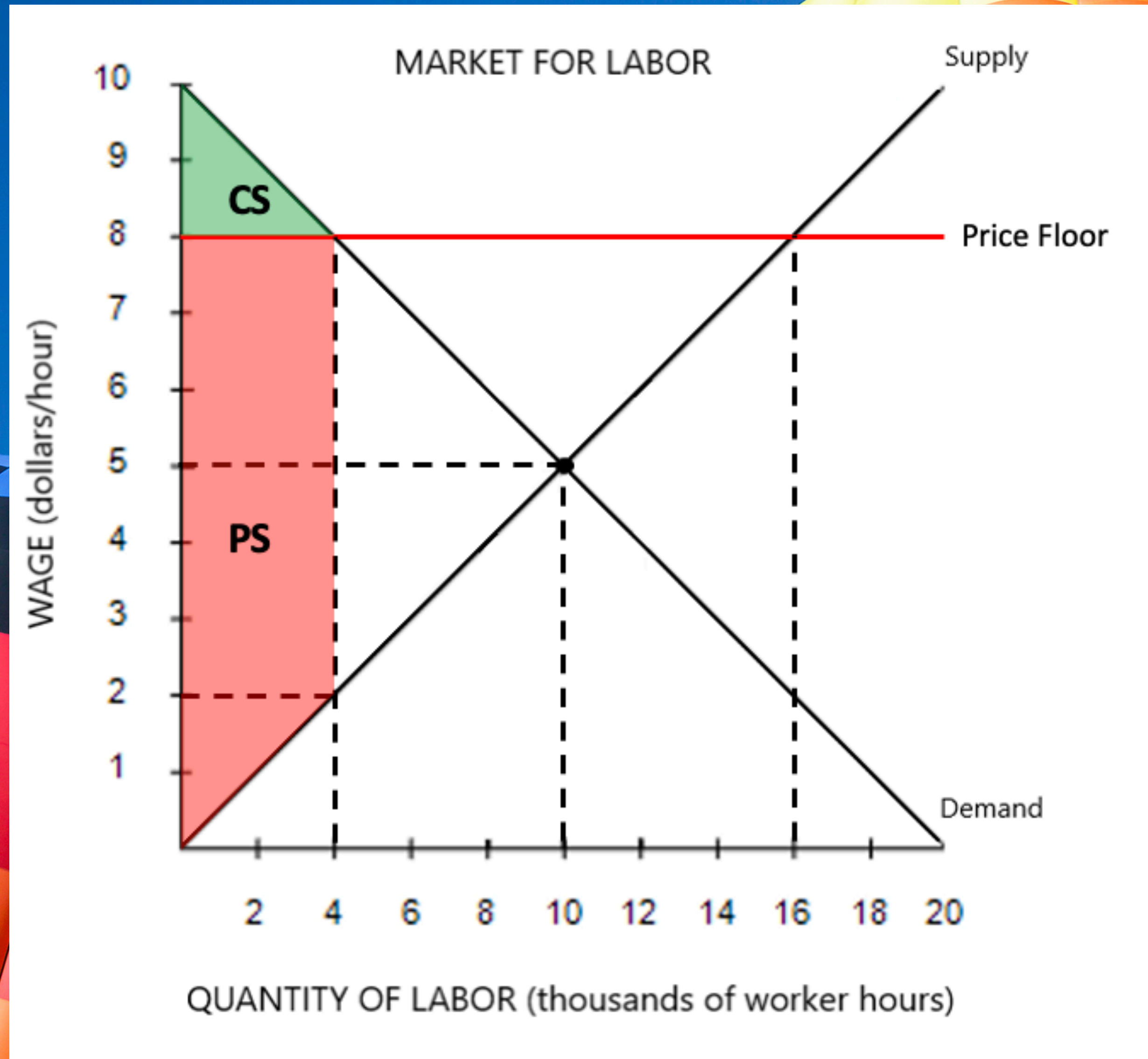


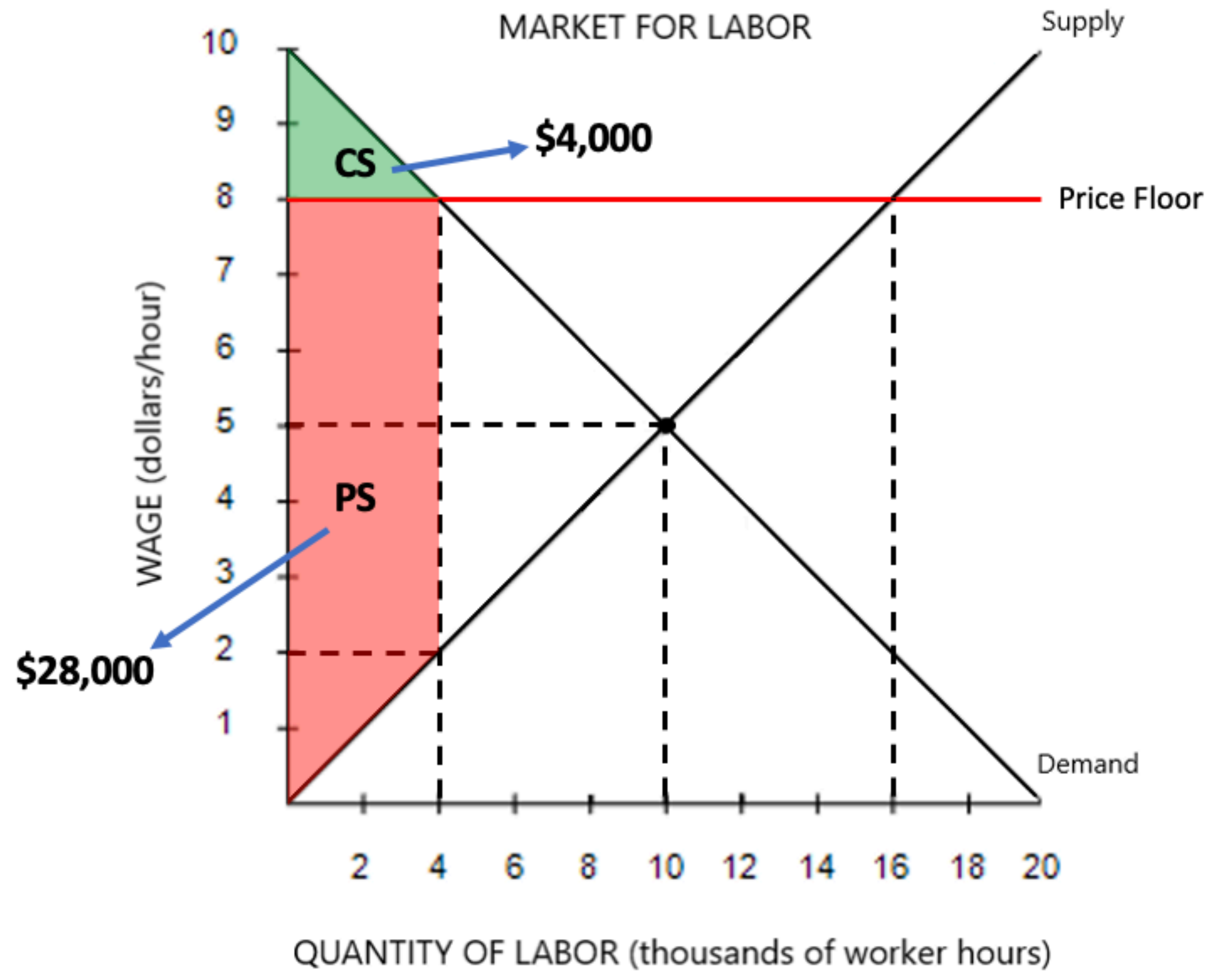
12,000
UNEMPLOYED
workers!

Price Floor: Minimum Wage Law

- Suppose that policymakers create a minimum wage law that implements a price floor of \$8/hour...
 - 6. Label & calculate the new consumer & producer surplus.

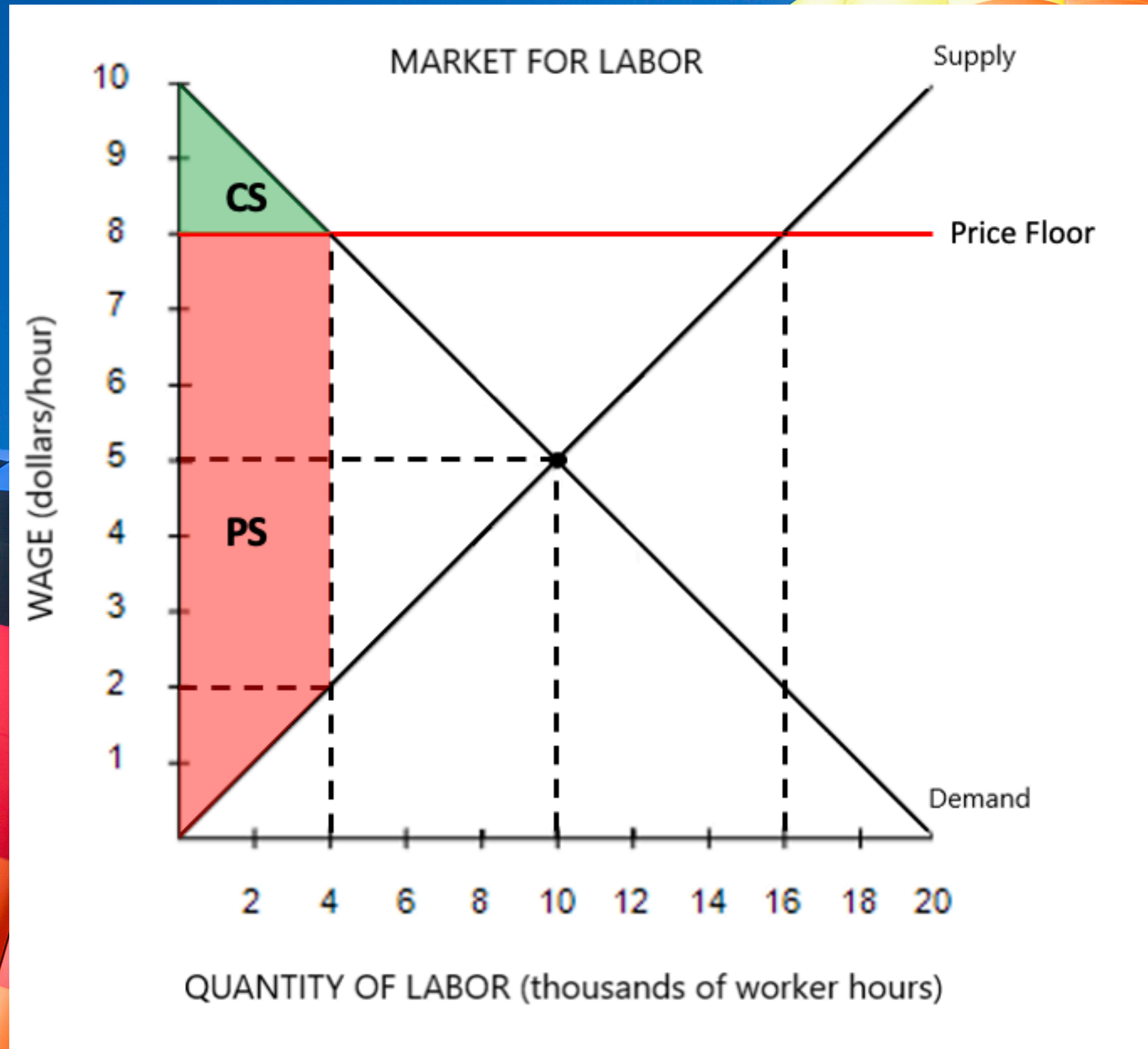


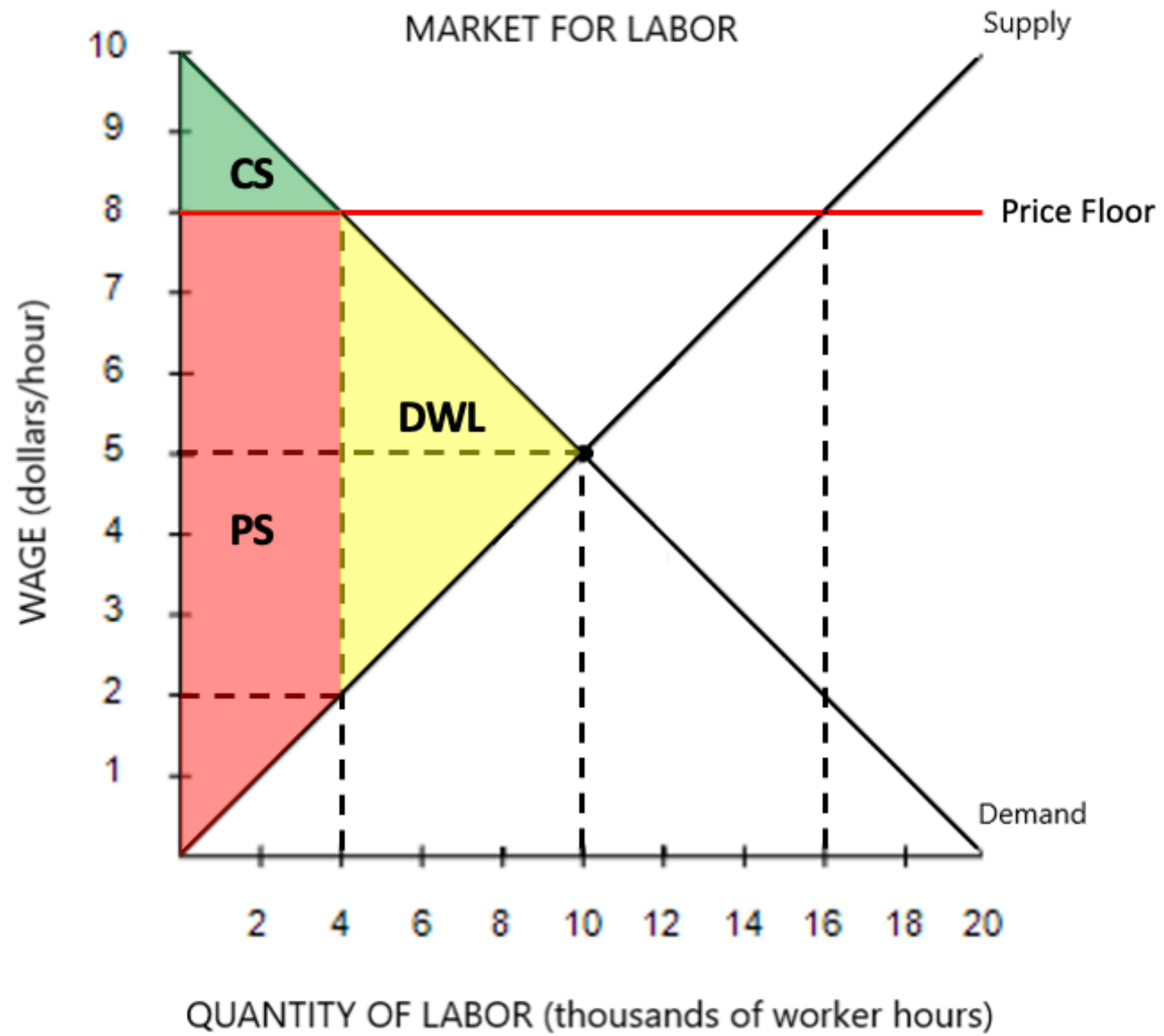


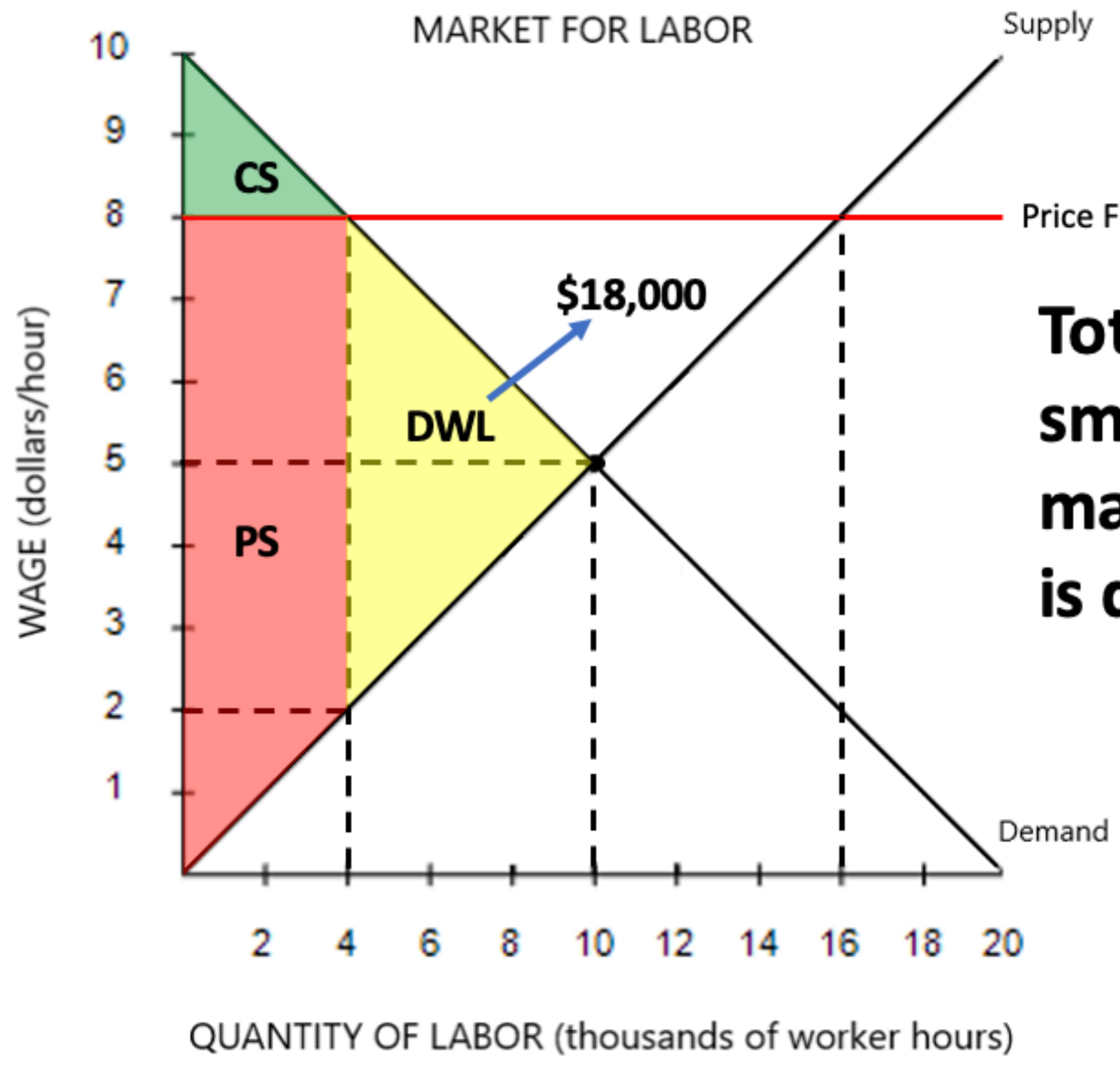


Price Floor: Minimum Wage Law

- Suppose that policymakers create a minimum wage law that implements a price floor of \$8/hour...
 - 7. What happens to the total surplus in the market? Label & calculate the deadweight loss.







Total Surplus is smaller (no longer maximized). There is deadweight loss!

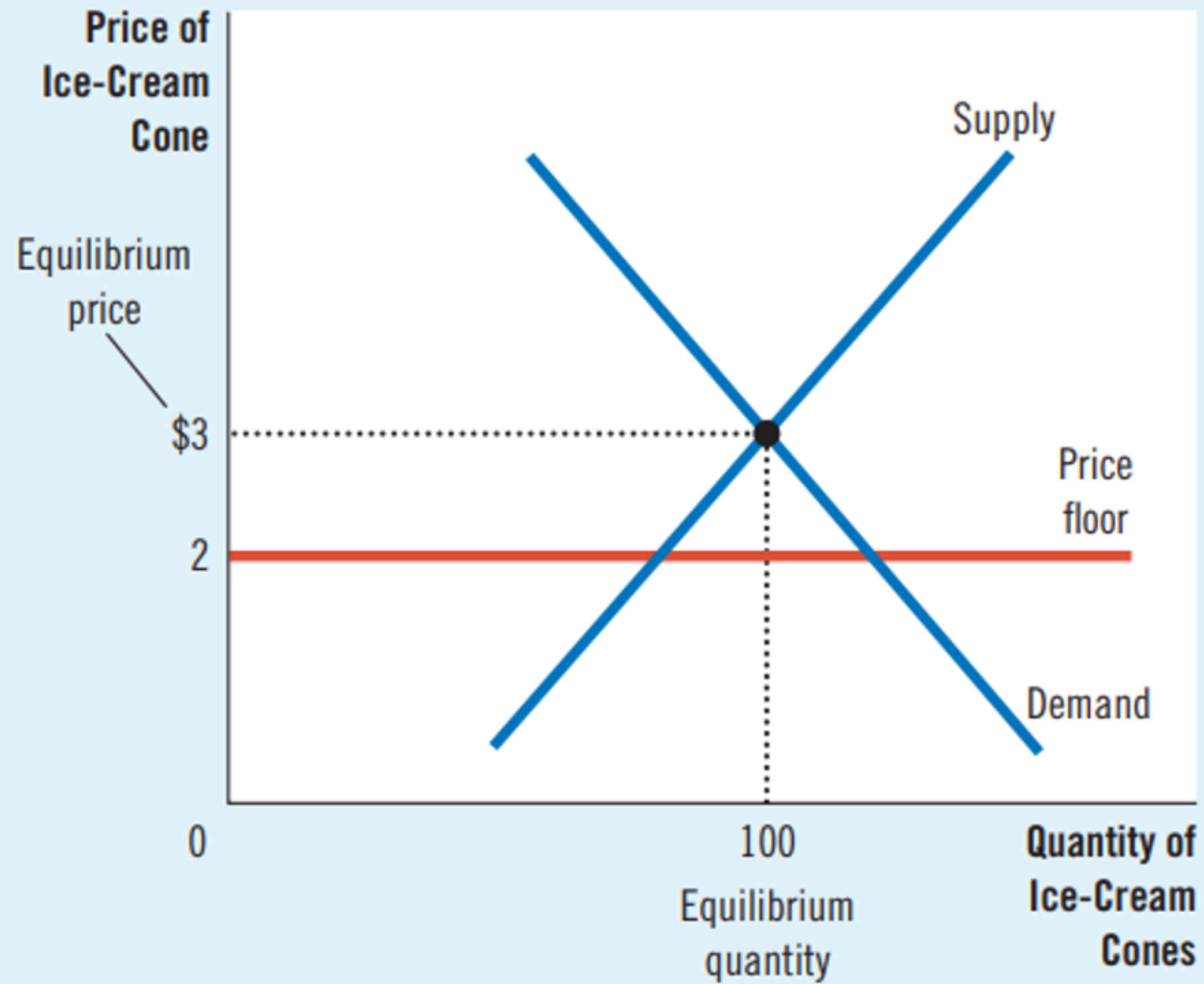
Price Floor: Minimum Wage Law

- The price floor caused a surplus of labor (unemployment).
- Who stands to benefit from the price floor?
 - Some producers (workers) who get a higher wage.
- At whose expense?
 - Other producers who don't get to work at all.
 - Consumers (firms) that don't get to hire enough labor, or those that do still hire, but must offer a higher wage.

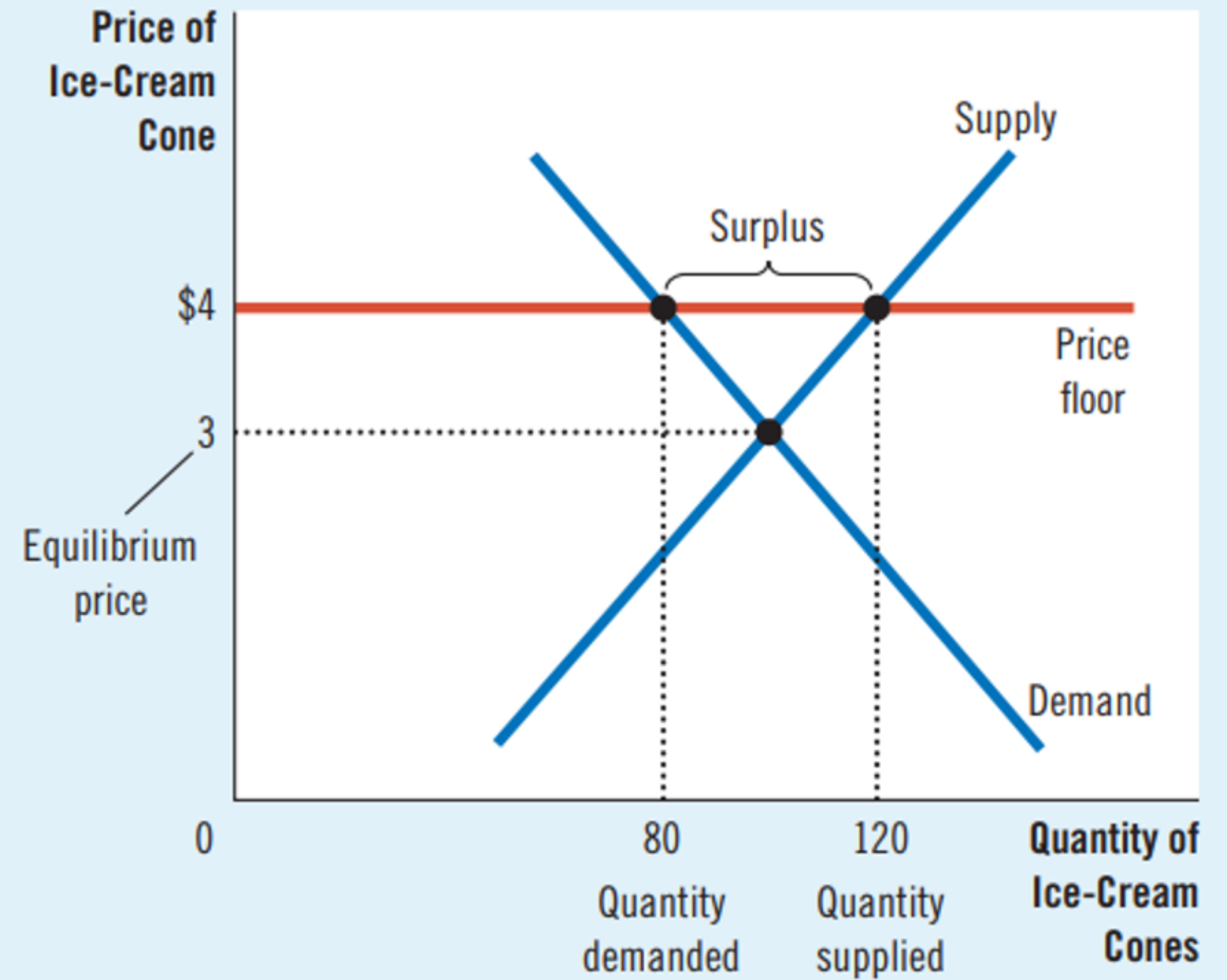
Binding vs. Non-Binding Floor

- Non-Binding Price Floor
 - When the floor is set below the equilibrium price.
 - No affect on equilibrium price & quantity.
- Binding Price Floor
 - When the floor is set above the equilibrium price.
 - Surpluses persist.

(a) A Price Floor That Is Not Binding



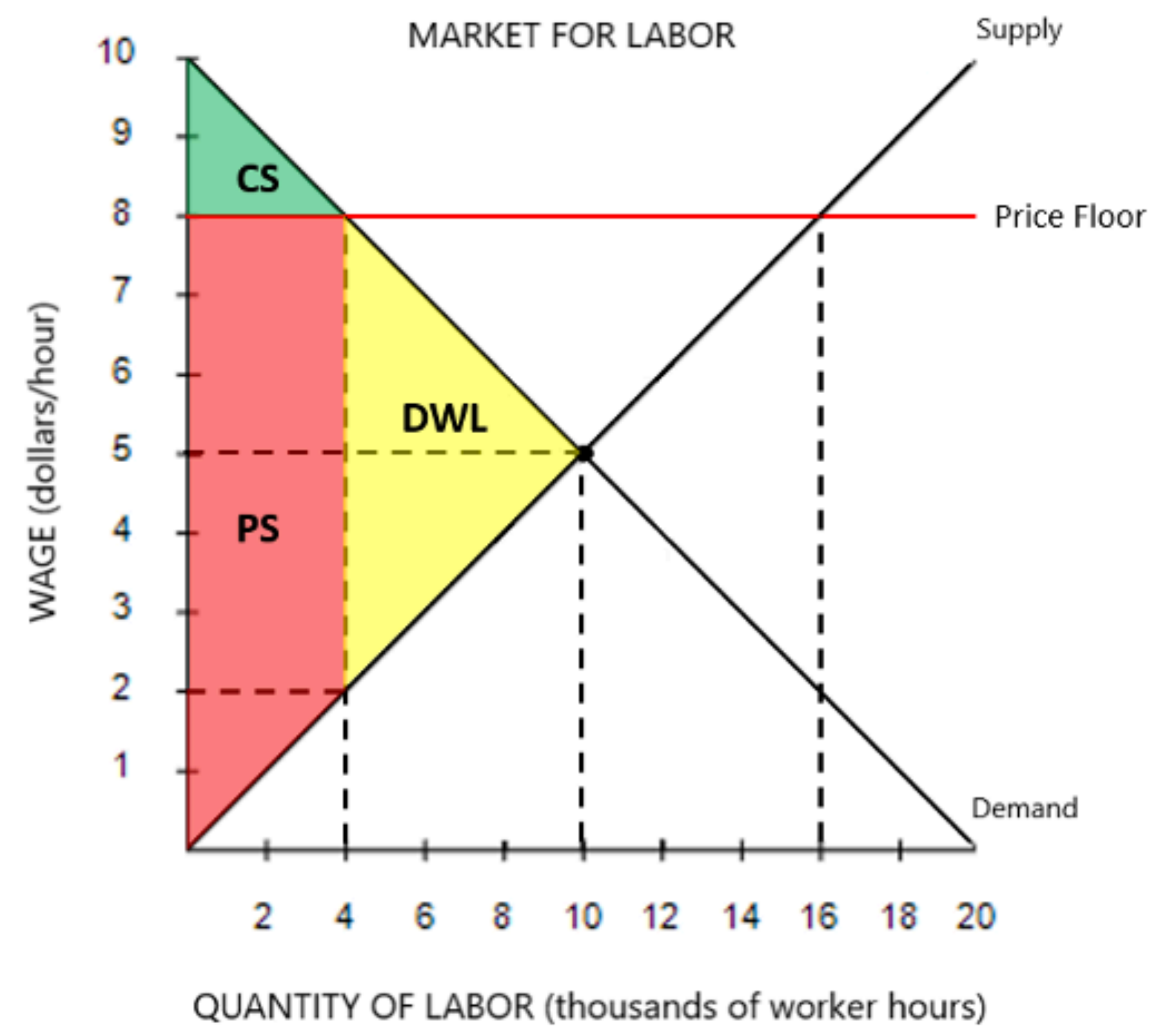
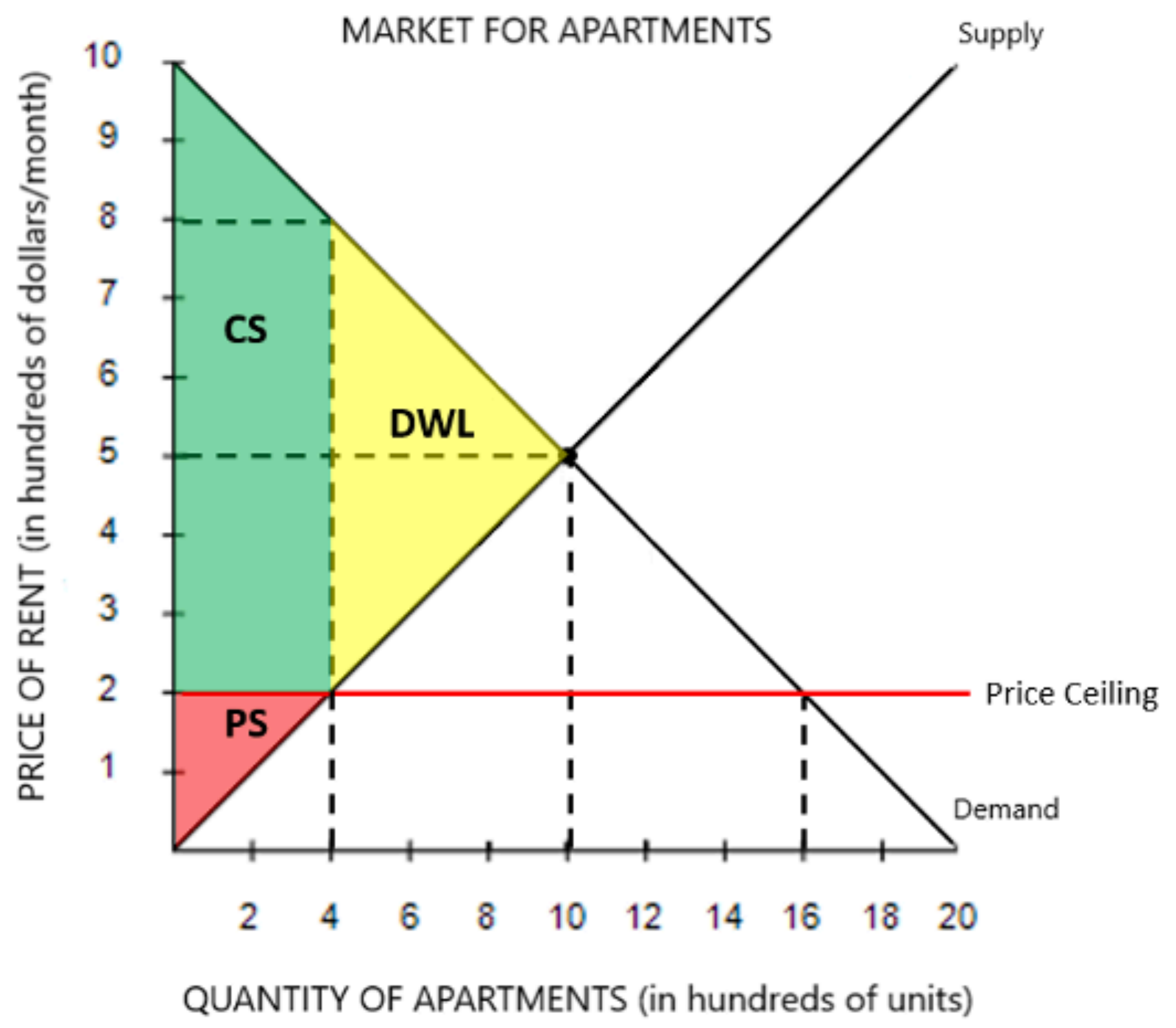
(b) A Price Floor That Is Binding



Price Control Implication

The Role of Prices (Rationing)

- The primary margin for *rationing* scarce goods across potential consumers on markets is price.
- Scarcity is a fact; we have to ration somehow.
- If price controls take away the margin of price, we have to consider which other margins people will use to ration goods.



General Effects of Price Controls

- Shortages (Ceilings) & Surpluses (Floors)
- Deadweight Loss (loss of potential gains from trade)
- Reductions in Quality
- Waste/Search Costs
- Misallocation of Resources

General Effects of Price Controls

- Shortages (Ceilings) & Surpluses (Floors)
- Deadweight Loss (loss of potential gains from trade)
- ***Reductions in Quality***
- ***Waste/Search Costs***
- ***Misallocation of Resources***



Reduction in Quality



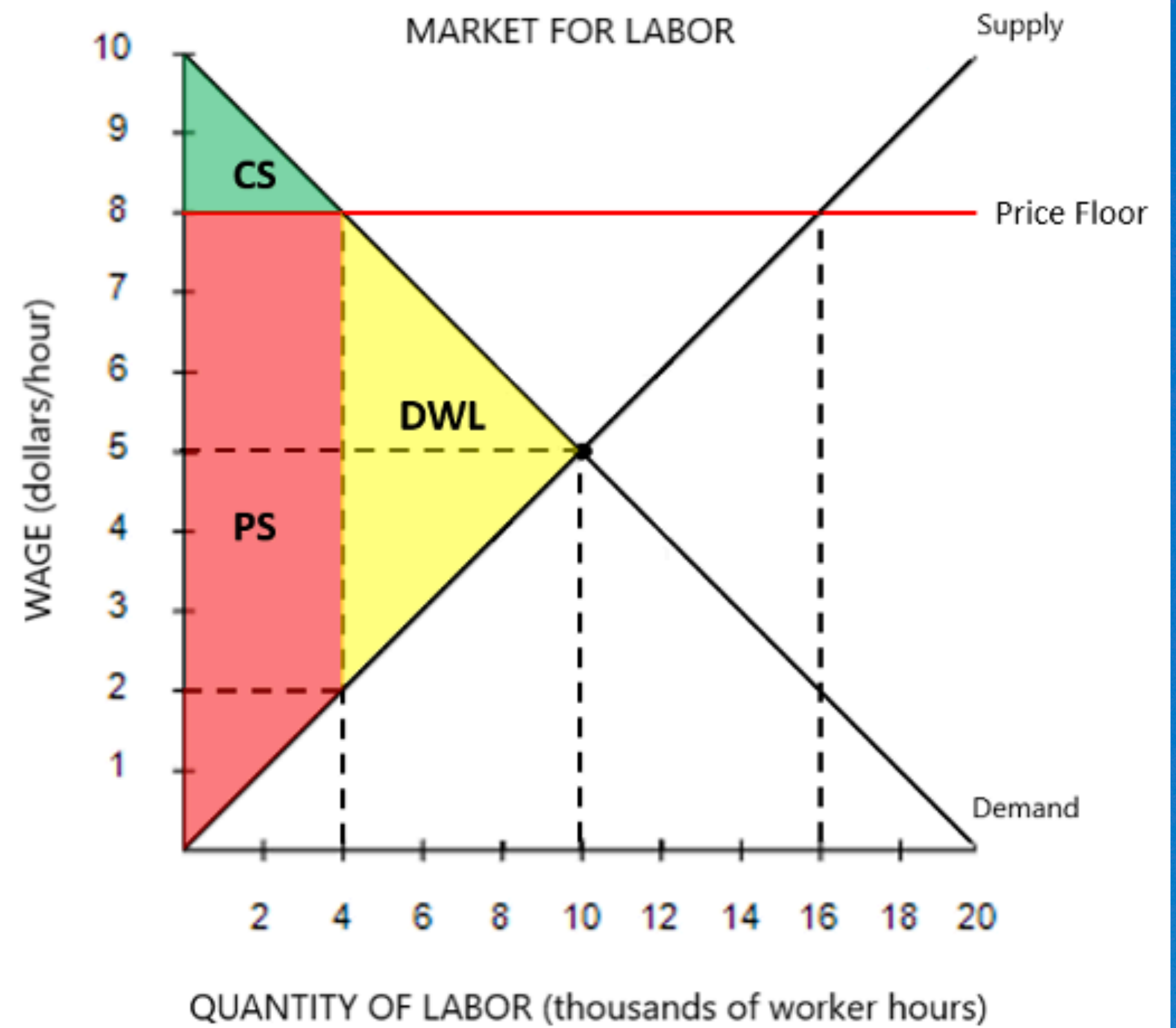
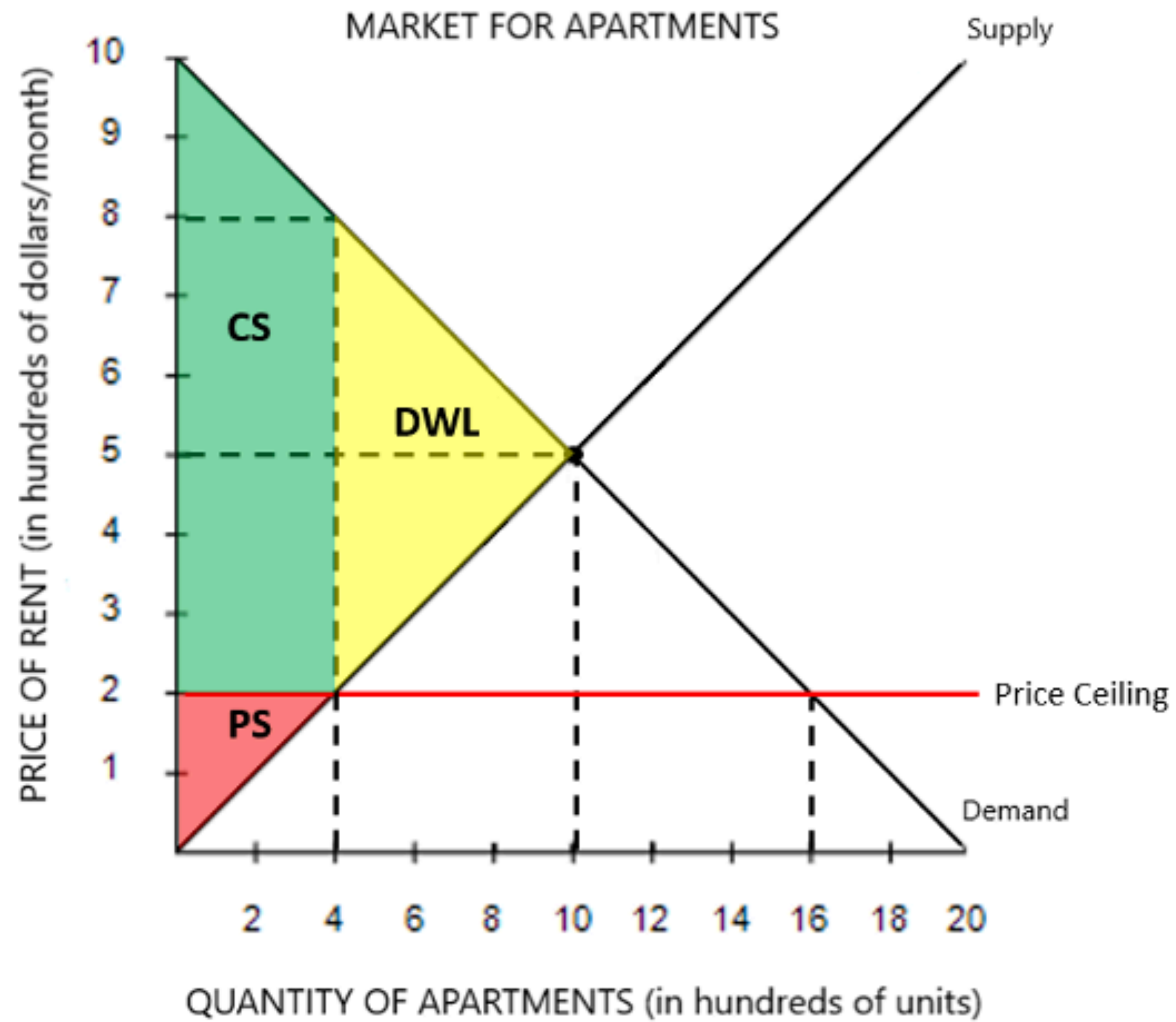
Waste/Search Costs

A close-up photograph of a person's hand holding a single stalk of wheat and a small pile of harvested grain. The background shows a vast field of golden wheat under a cloudy sky, with a yellow combine harvester visible in the distance. The text "Misallocation of Resources" is overlaid on the image.

Misallocation of Resources

General Effects of Price Controls

- What are other ways of rationing if price controls eliminate the margin of price?
- Think about the rent-control and minimum wage examples...



General Effects of Price Controls

- What are other ways of rationing if price controls eliminate the margin of price?
 - Race?
 - Religion?
 - Sex?
 - Political Beliefs?
- Perverse incentives!

General Effects of Price Controls

- “In a free and competitive market, a bigoted landlord would at least have to pay for his bigotry in the form of lower profits. It’s also likely that these lower profits would ultimately encourage him to find another line of work. **When rents are controlled, the penalty for bigotry is effectively removed.**”

General Effects of Price Controls

- The sad irony is that price controls, more often than not, harm those they claim to help.
- Do poor, underprivileged people get rent-control housing?
 - Ex: Wealthy families keep their rent-controlled apartment as a “vacation home.”
- Does minimum wage help young, unskilled labor?
 - Ex: Teenagers are usually the first to go when wages crowd out employees.

So what?

“Competition” Doesn’t Stop

- When prices aren’t free to adjust, markets are inefficient, and information fails to be conveyed.
- When price controls limit the rise or fall of prices, the competitive market process does not stop. The *rationing mechanism* simply changes.
- It’s not uncommon to see perverse incentives emerge when price controls are implemented.

Markets do it best!

- Free markets allow for a smooth functioning price system to efficiently allocate resources, & convey information about relative scarcities.
- Markets also (directly & indirectly) provide moral checks on perverse incentives by punishing immoral behavior through loss, & rewarding moral behavior through profit.

Thanks for your attention!
End of class.