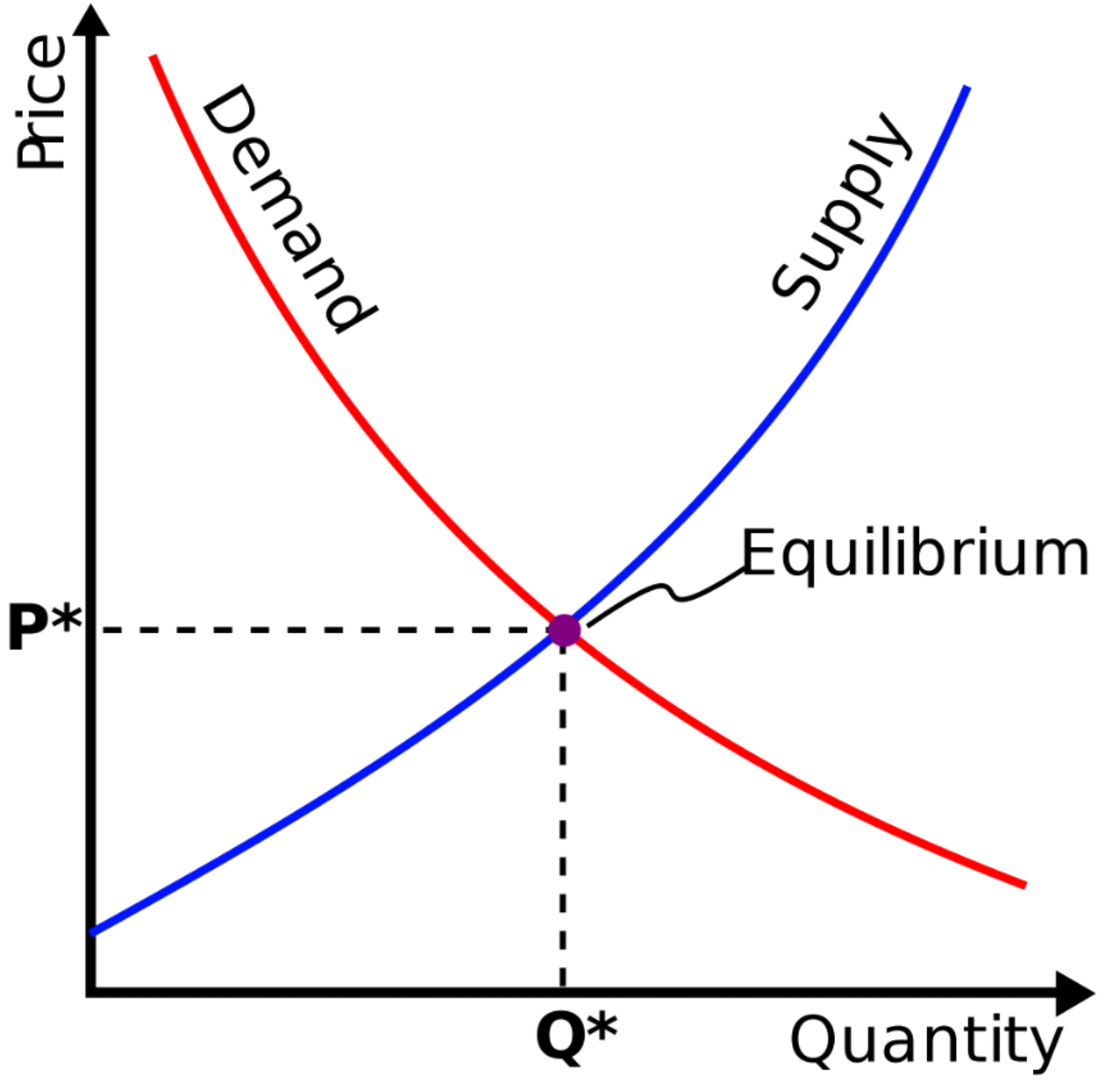
Equilibrium II

Analyzing Changes in Equilibrium

BECO 3310 Fall 2025


Price
Demand
Supply
Equilibrium
P*
Q*
Quantity

Review

Equilibrium

- A situation in which the market price has reached the level where quantity supplied equals quantity demanded.

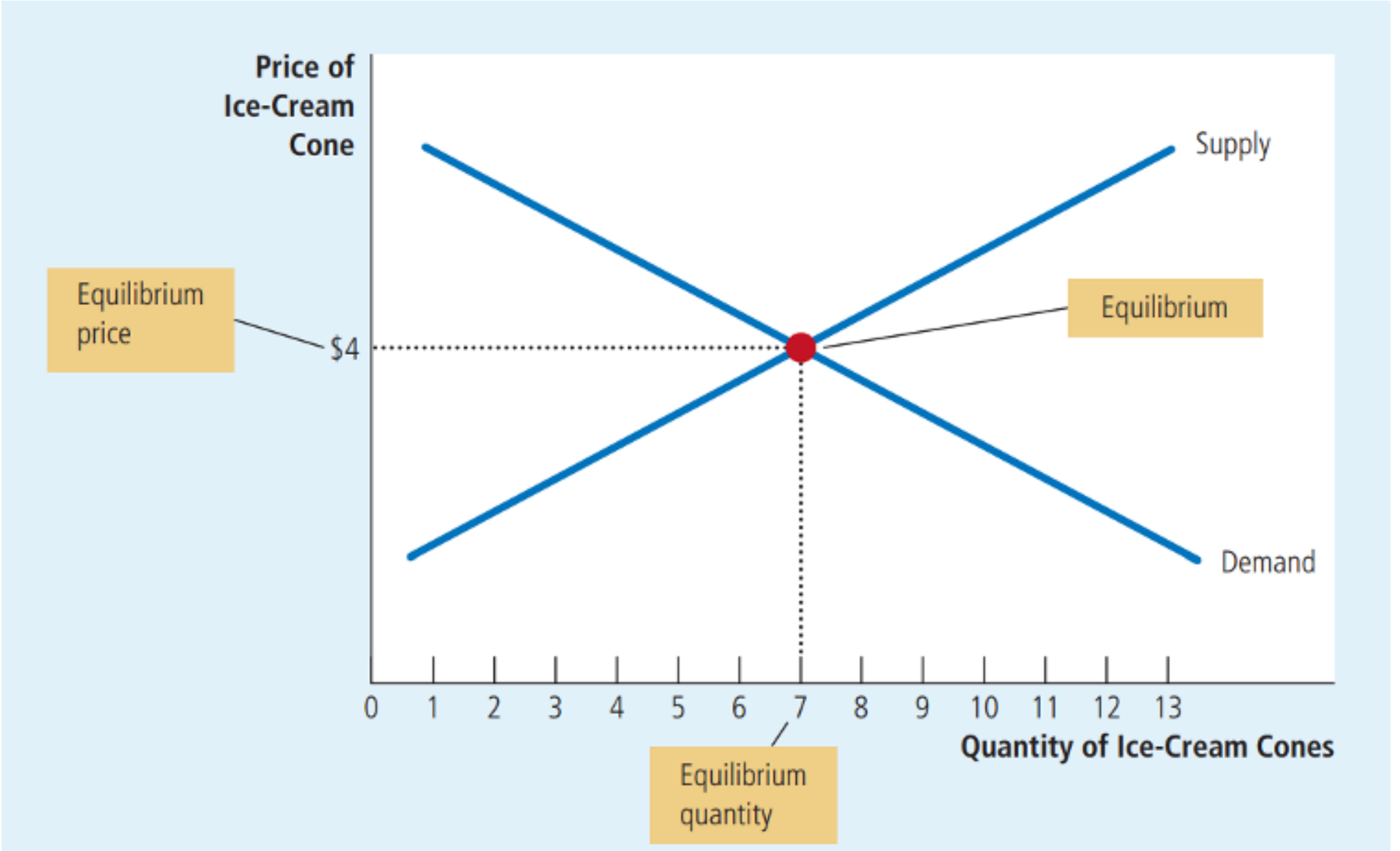
$$Q_{Supplied} = Q_{Demanded}$$

Equilibrium

- Producers & consumers interact with each other in competitive markets, balancing producer’s desire for high prices & consumer’s desire for low prices.

Equilibrium

- Equilibrium Price
    - The price that balances the quantity supplied & quantity demanded of a good.
    - Market-Clearing Price, P^*
- Equilibrium Quantity
    - The quantity that balances the quantity supplied & quantity demanded of a good.
    - Market-Clearing Quantity, Q^*


Price of Ice-Cream Cone
Supply
Equilibrium price
$4
Equilibrium
Demand
0 1 2 3 4 5 6 7 8 9 10 11 12 13
Quantity of Ice-Cream Cones
Equilibrium quantity

Equilibrium II

Analyzing Changes in Equilibrium

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Equilibrium in the Real World

- The Forces of the Market are in constant motion.
- Price & non-price determinants are constantly changing, shifting supply, demand, or both.
- This leads to ever-changing equilibrium conditions, and analyzing these changes becomes more complex.

3 Steps to Analyzing Changes in Equilibrium

1. Decide whether the event shifts the supply or demand curve (or perhaps both).
2. Decide in which direction the curve shifts.
3. Use the supply-and-demand diagram to see how the shift changes the equilibrium price and quantity.

Equilibrium: Changes in Demand

Variables Affecting Demand (Review)

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

Example: Ice Cream Market

- Suppose one summer was especially hot.
- How does this affect the market for ice cream?
- Remember the 3 steps…?

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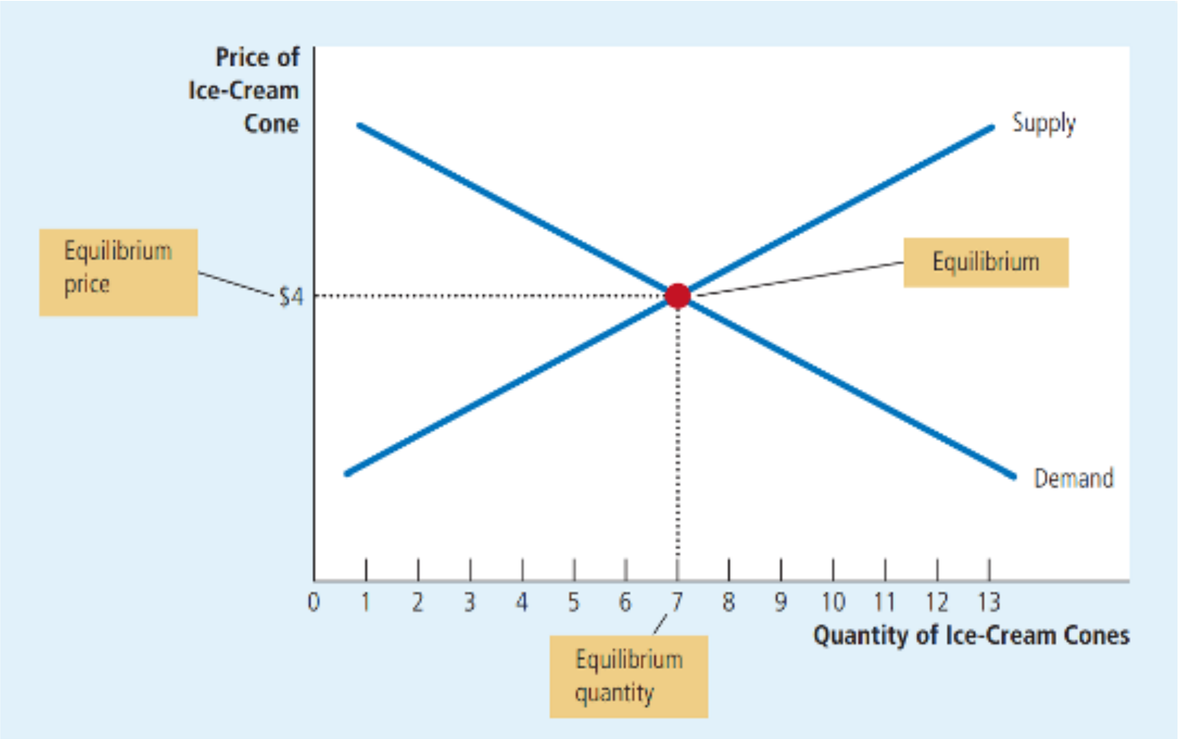
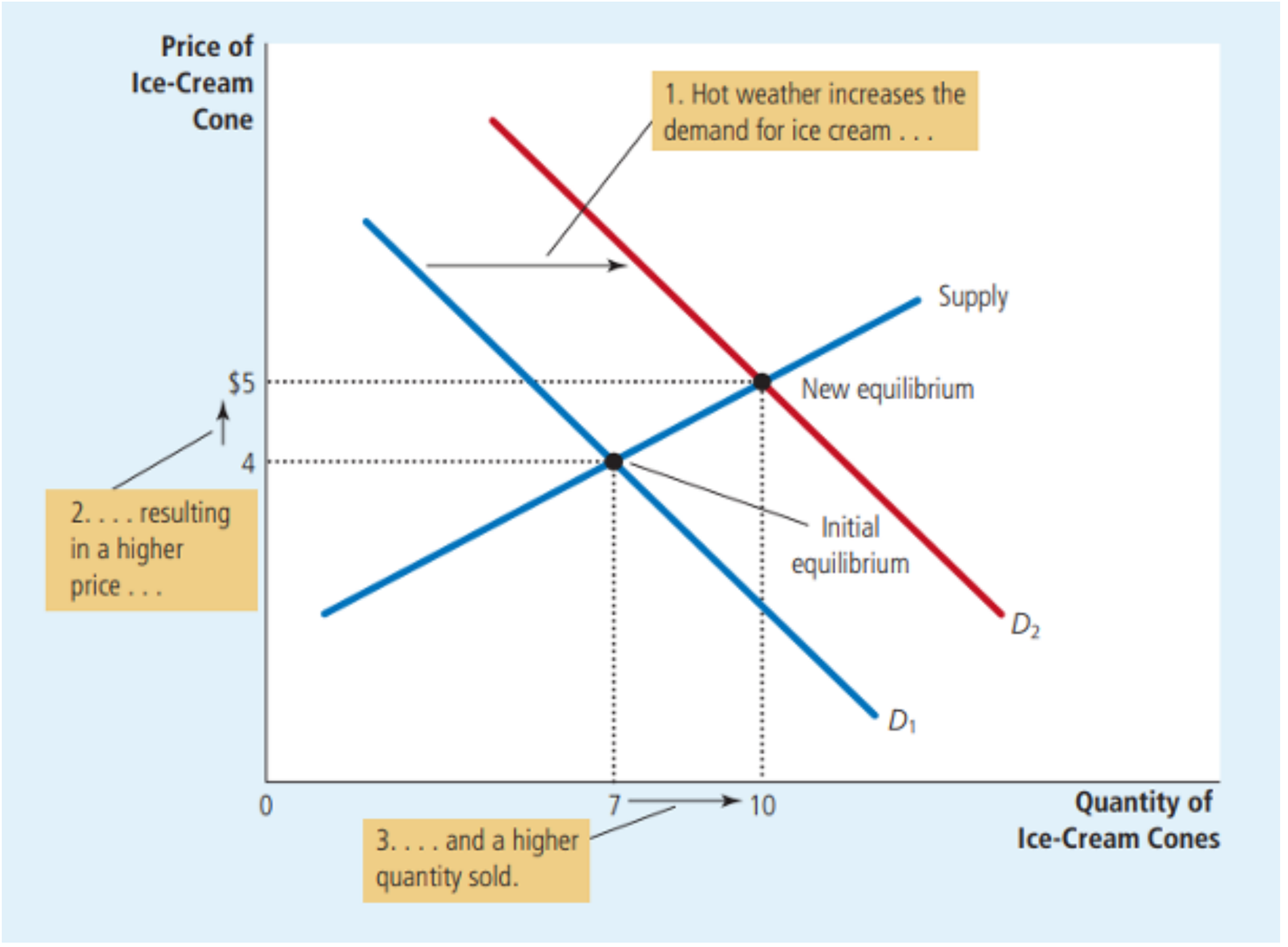
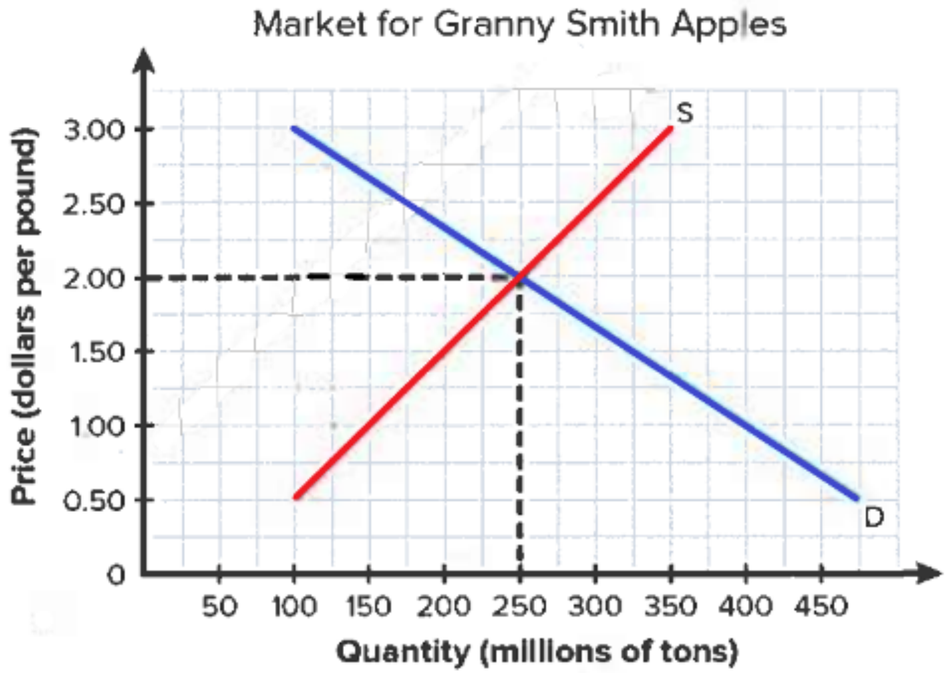


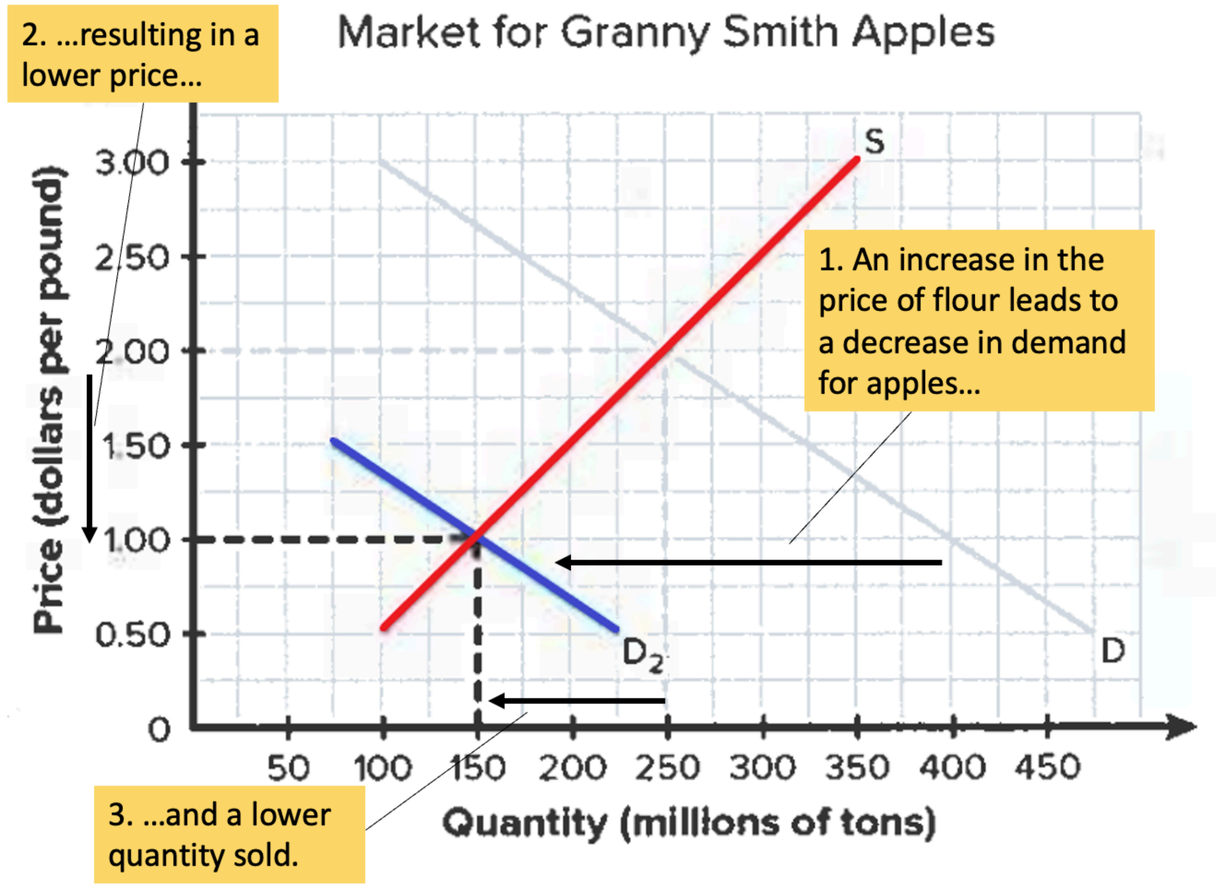


Following an increase in demand, the **price & quantity** of ice cream both **increase**.

Example: Apples

- Suppose the price of flour increases.
- How does this affect the market for <u>apples</u>?
- Remember the 3 steps…?

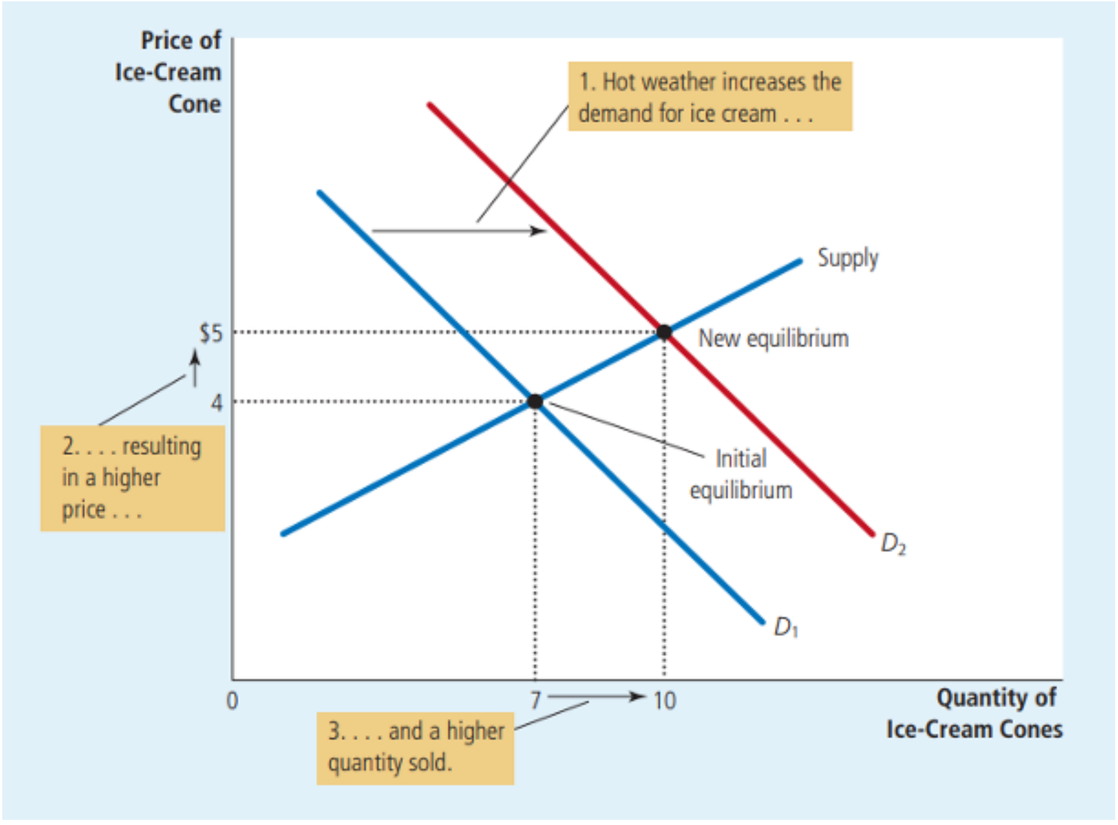


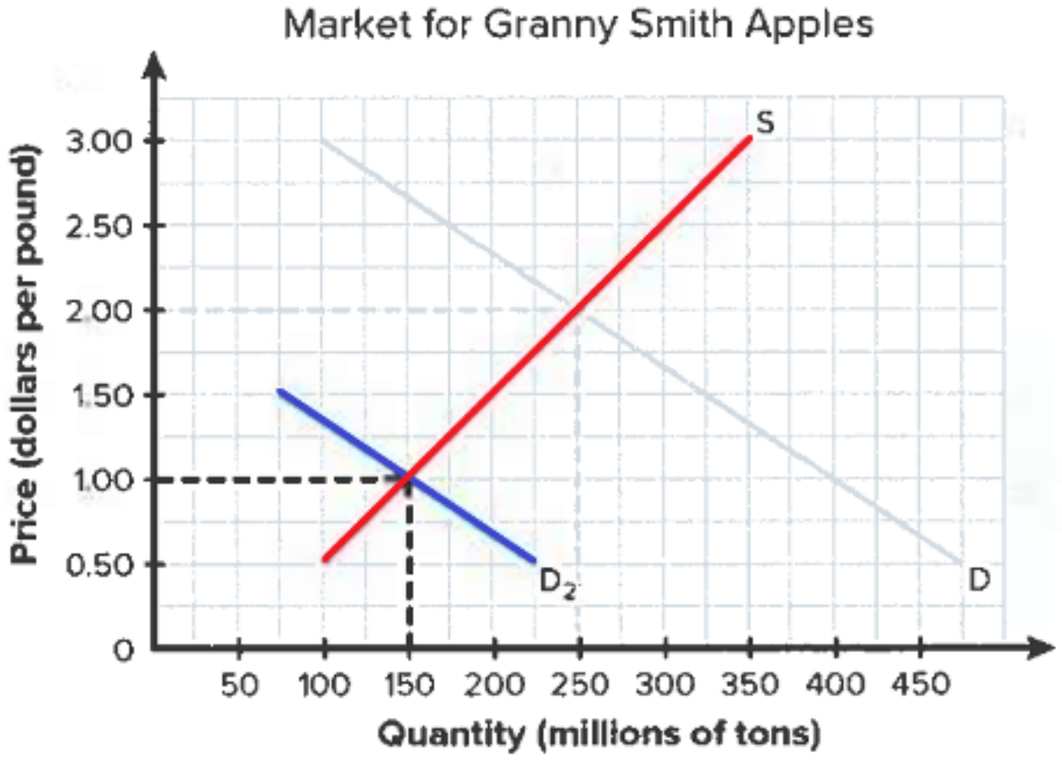


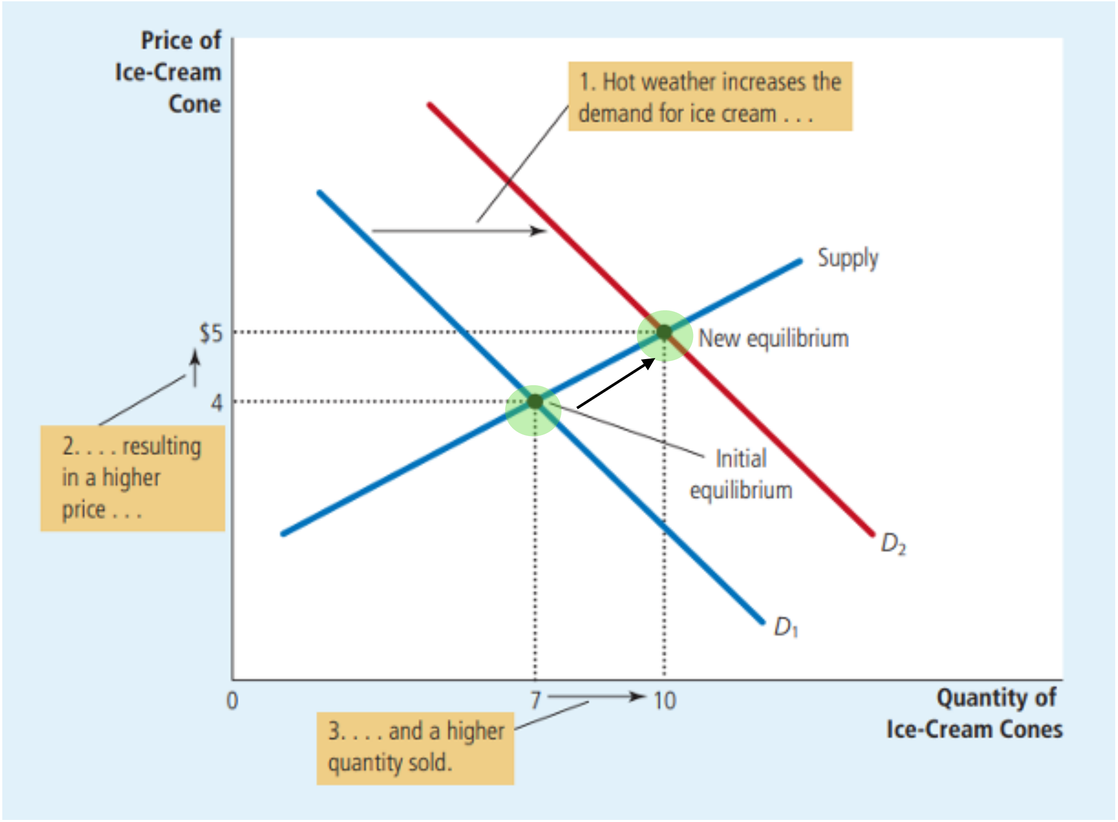
Following a decrease in demand, the **price & quantity** of apples both **decrease**.

How Changes in Demand Affect P & Q

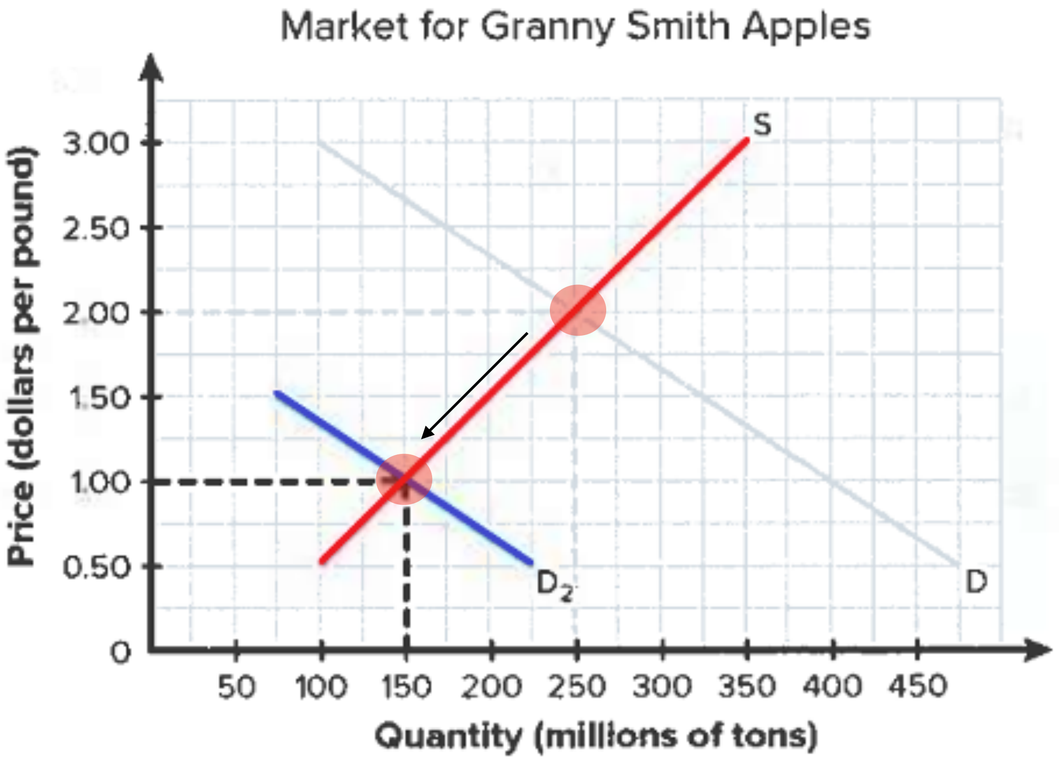
- If demand increases & supply stays the same…
    - …equilibrium price & quantity both increase.
        - If, **↑D ↔S, then ↑P ↑Q.**
- If demand decreases & supply stays the same…
    - …equilibrium price and quantity both decrease.
        - If, **↓D ↔S, then ↓ P ↓ Q.**


Price of Ice-Cream Cone
1. Hot weather increases the demand for ice cream . . .
Supply
$5
4
New equilibrium
Initial equilibrium
2. . . . resulting in a higher price . . .
D_2
D_1
0
7
10
Quantity of Ice-Cream Cones
3. . . . and a higher quantity sold.


Market for Granny Smith Apples
Price (dollars per pound)
3.00
2.50
2.00
1.50
1.00
0.50
0
S
D
D_2
50
100
150
200
250
300
350
400
450
Quantity (millions of tons)



Increase in quantity supplied



Decrease in quantity supplied

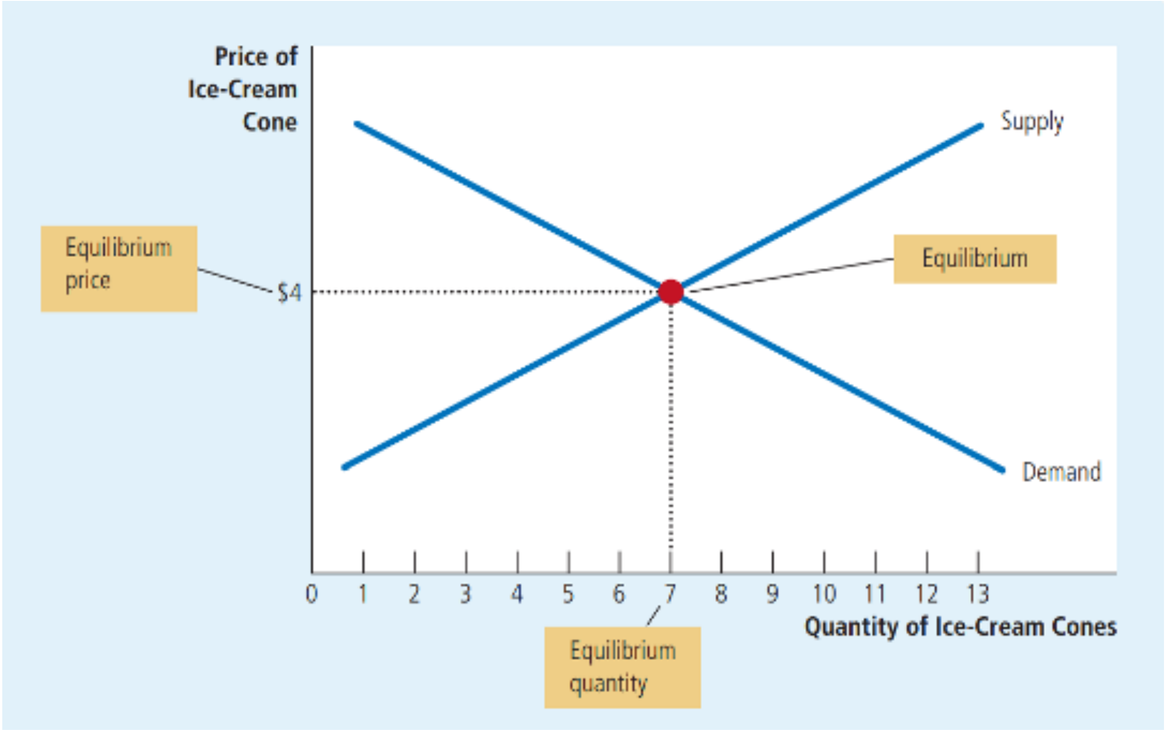
Equilibrium: Changes in Supply

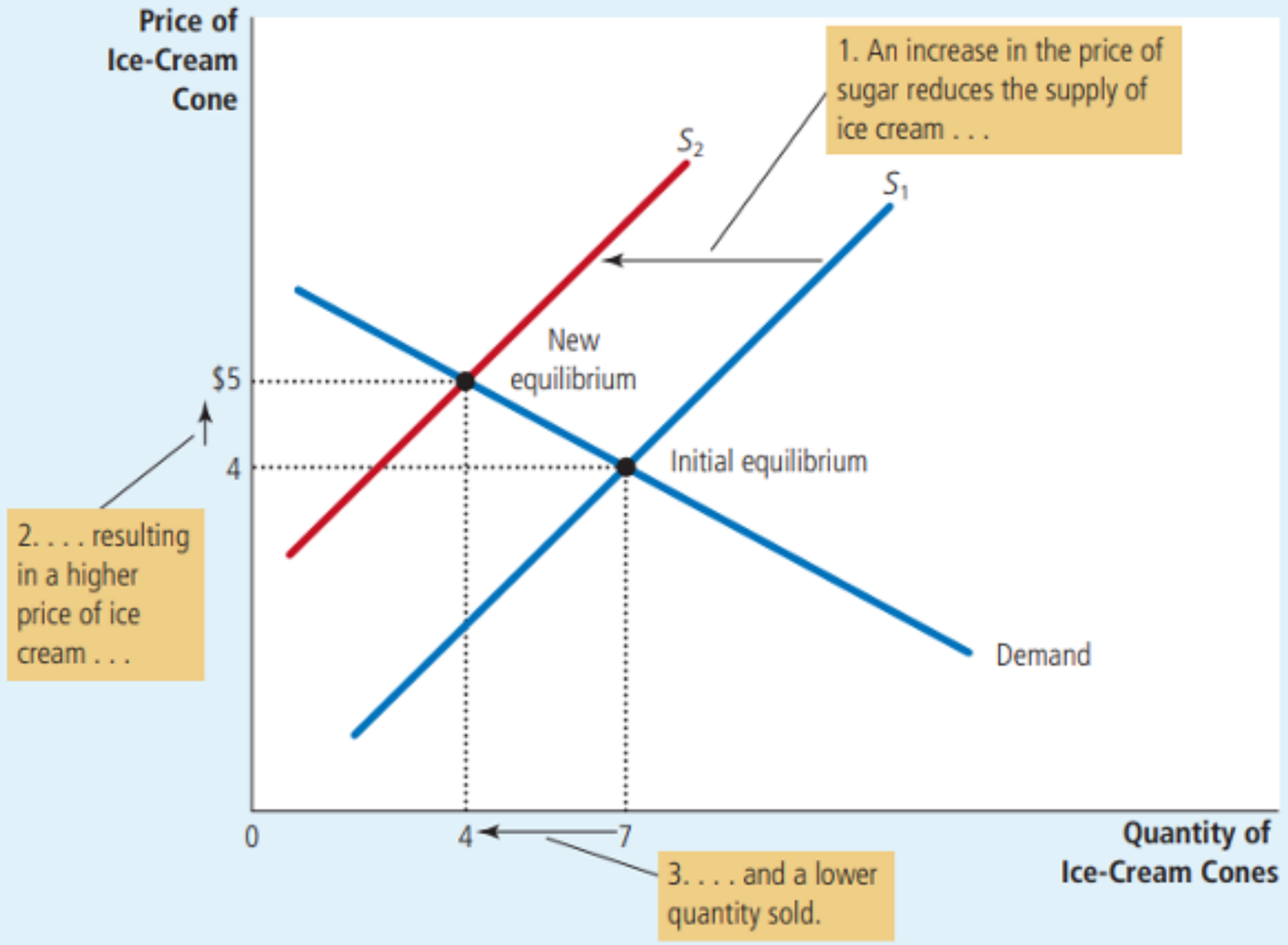
Variables Affecting Supply

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

Example: Ice Cream Market, Again

- Suppose a hurricane destroys a lot of sugar crops.
- How does this affect the market for ice cream?
- Remember the 3 steps…?

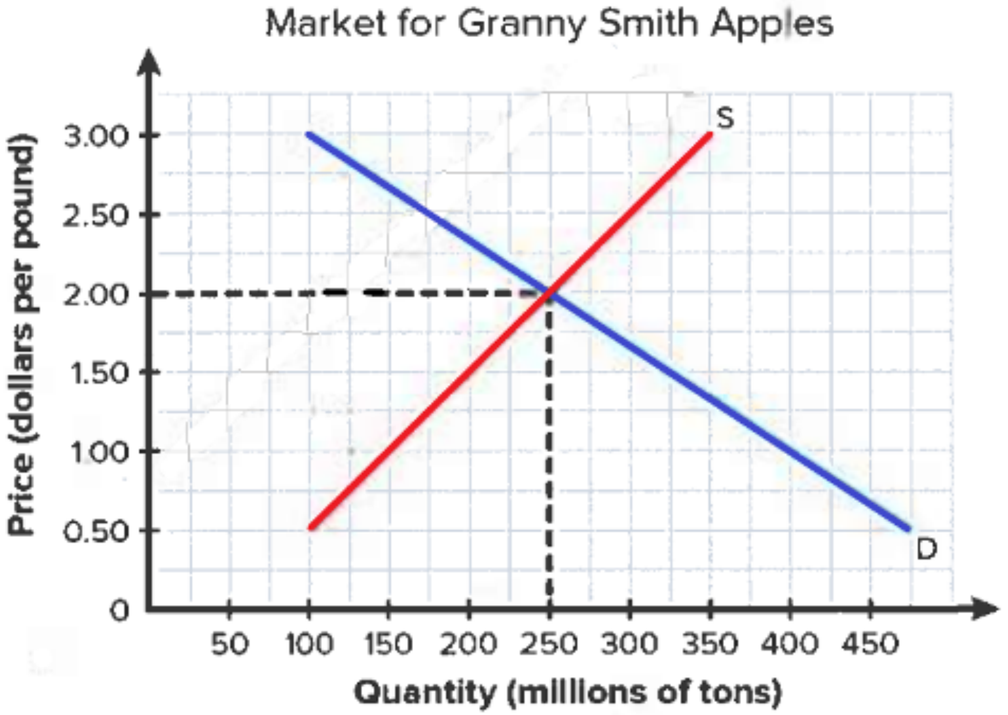


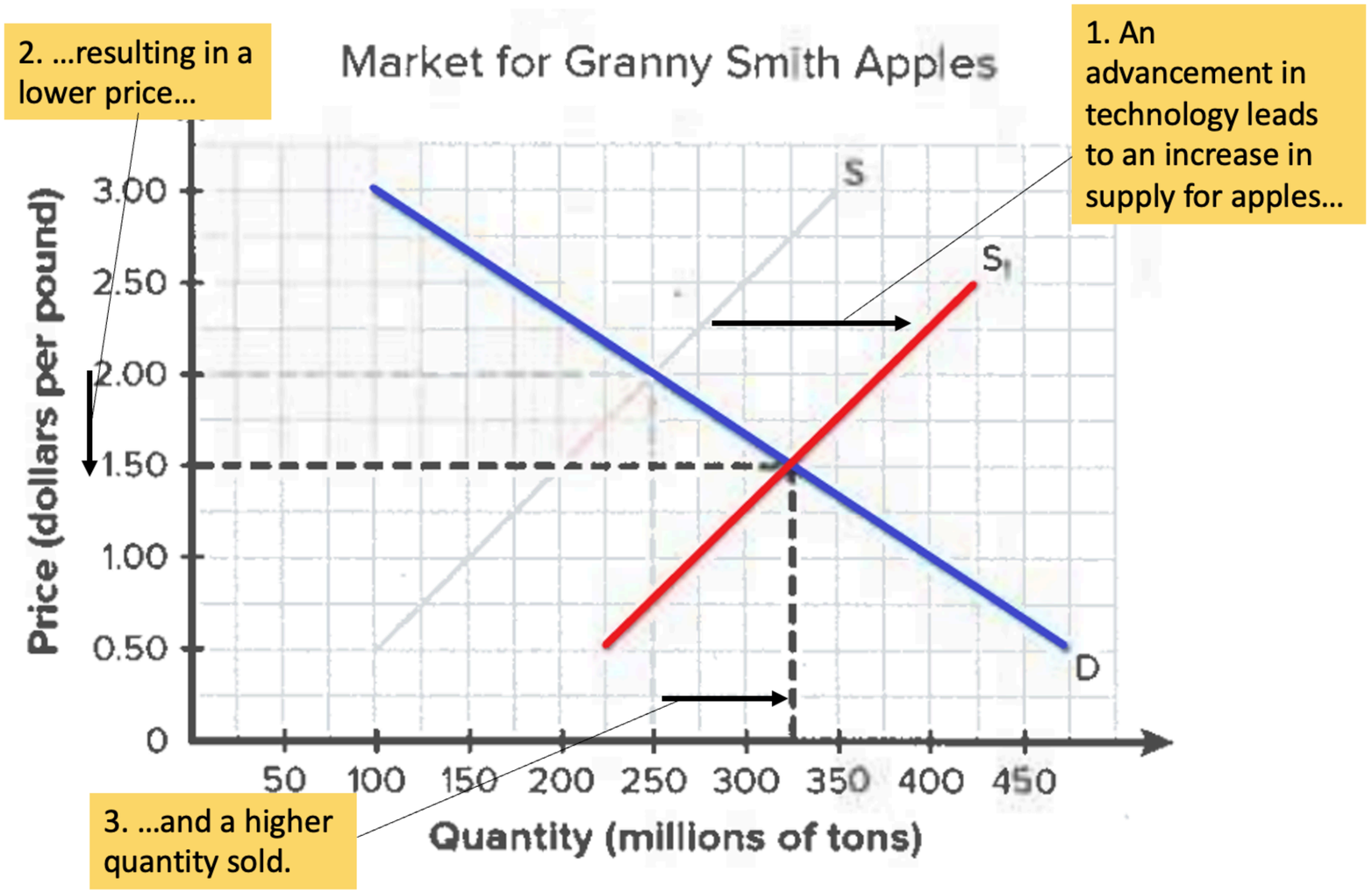


Following a decrease in supply, the **price** of ice cream **increases**, & the **quantity** of ice cream **decreases**.

Example: Apples, again

- Suppose a technological breakthrough makes apple picking easier.
- How does this affect the market for <u>apples</u>?
- Remember the 3 steps…?

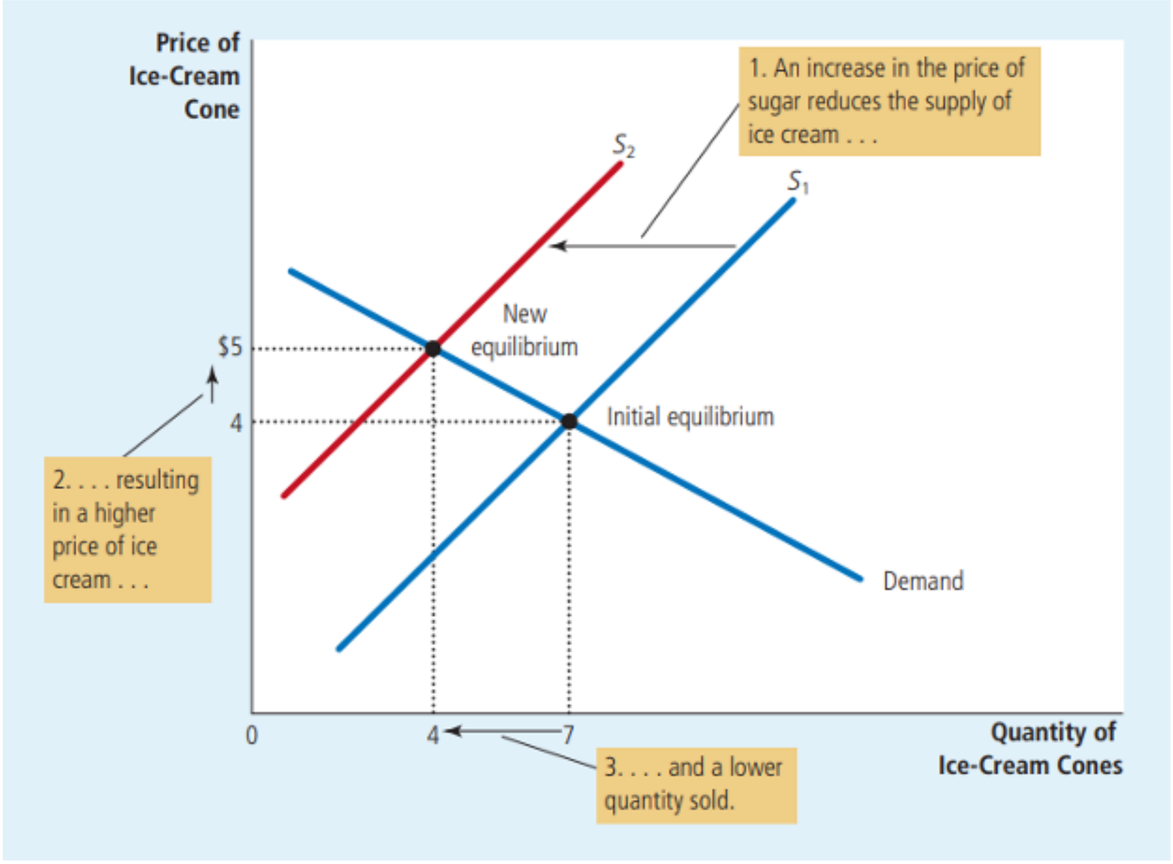


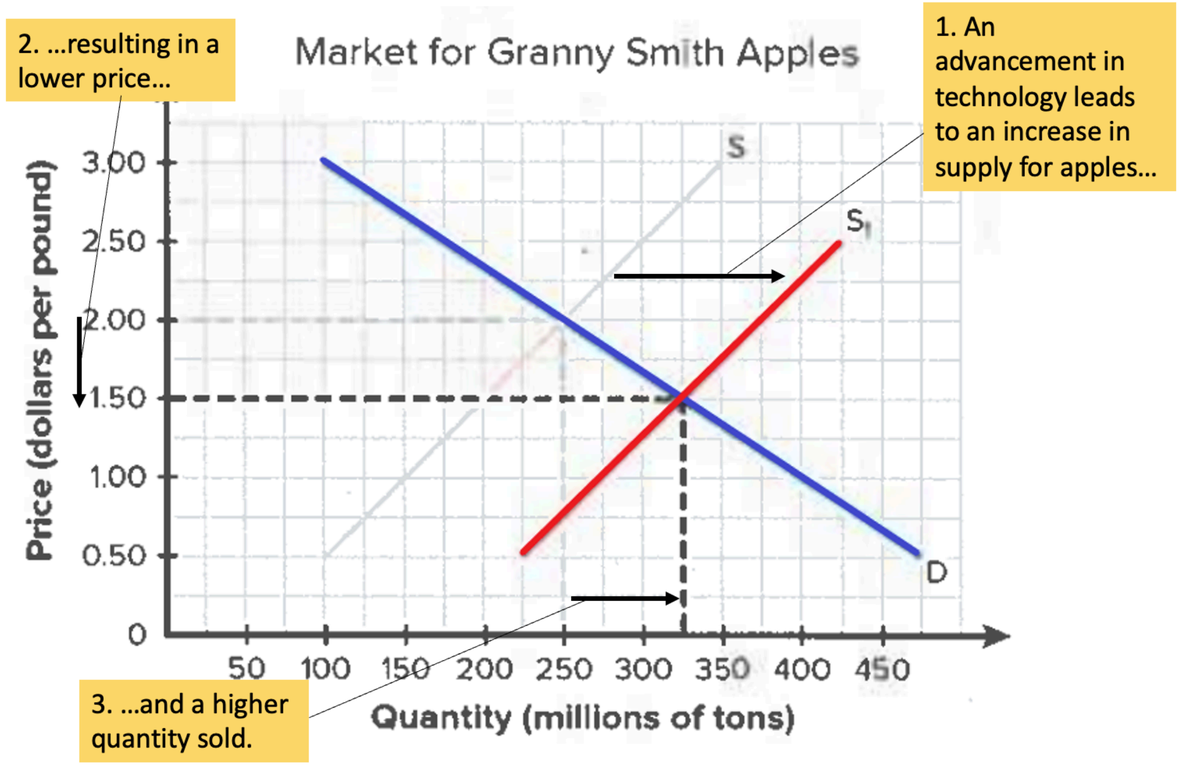


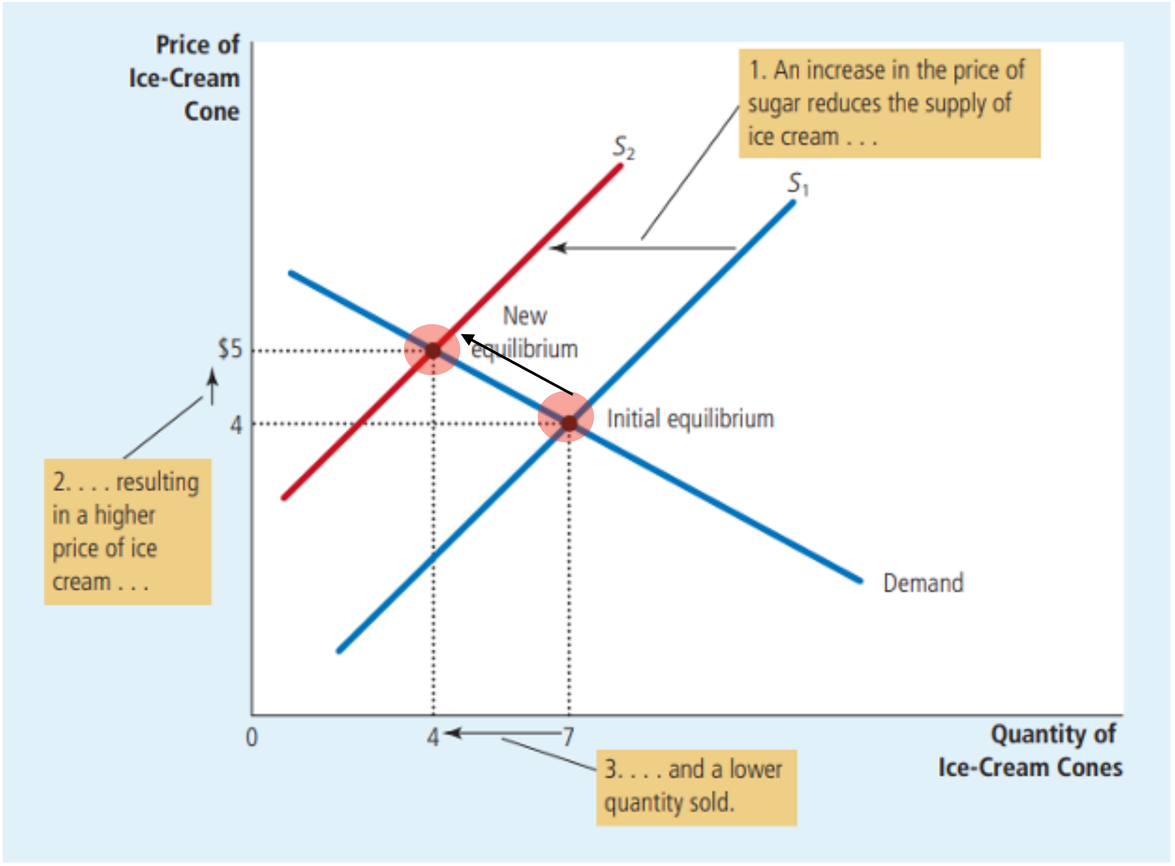
Following an increase in supply, the price of apples decreases, & the quantity of apples increases.

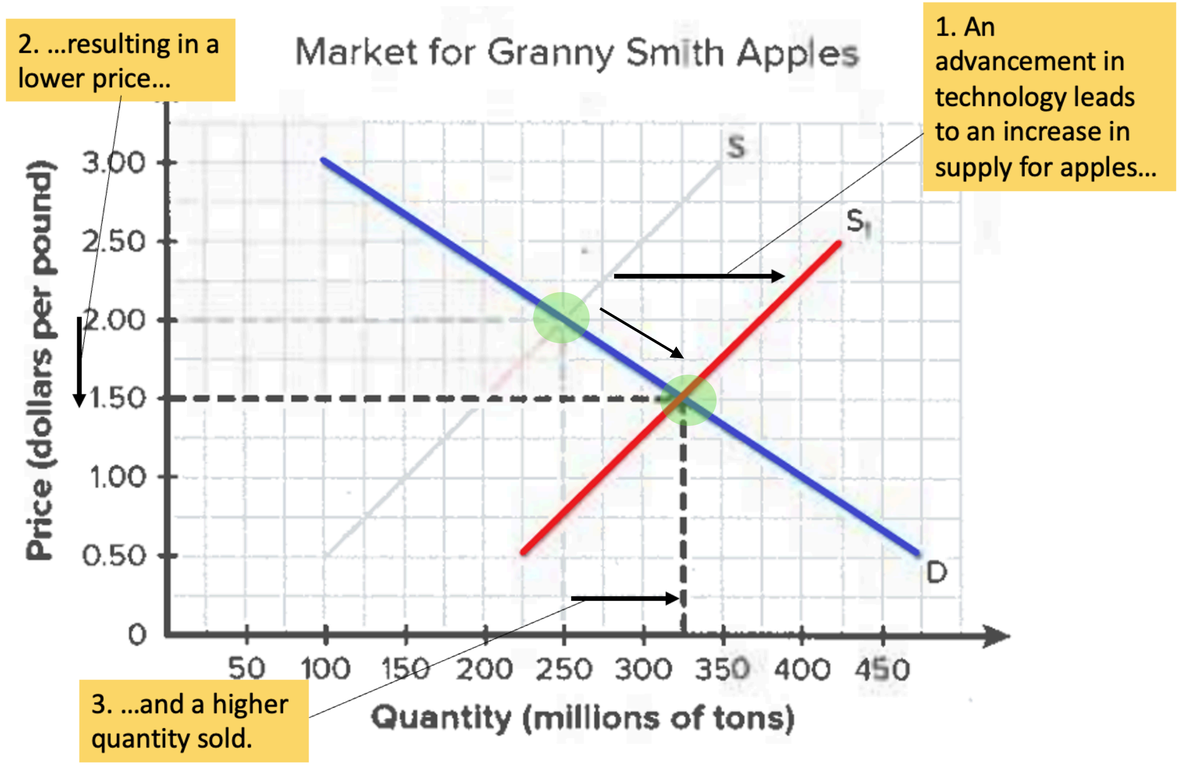
How Changes in Supply Affect P&Q

- If supply increases and demand stays the same…
    - …equilibrium price will decrease, and equilibrium quantity will increase.
        - If, **↑S ↔D, then ↓ P ↑Q**.
- If supply decreases & demand stays the same…
    - …equilibrium price will increase & equilibrium quantity will decrease.
        - If, **↓S ↔D, then ↑P ↓ Q**.


Price of Ice-Cream Cone
1. An increase in the price of sugar reduces the supply of ice cream . . .
S_2
S_1
New equilibrium
$5
4
Initial equilibrium
Demand
2. . . . resulting in a higher price of ice cream . . .
0
4
7
3. . . . and a lower quantity sold.
Quantity of Ice-Cream Cones


2. …resulting in a lower price…
Market for Granny Smith Apples
1. An advancement in technology leads to an increase in supply for apples…
Price (dollars per pound)
3.00
2.50
2.00
1.50
1.00
0.50
0
S
S_1
D
50 100 150 200 250 300 350 400 450
Quantity (millions of tons)
3. …and a higher quantity sold.





Decrease in quantity demanded

Increase in quantity demanded

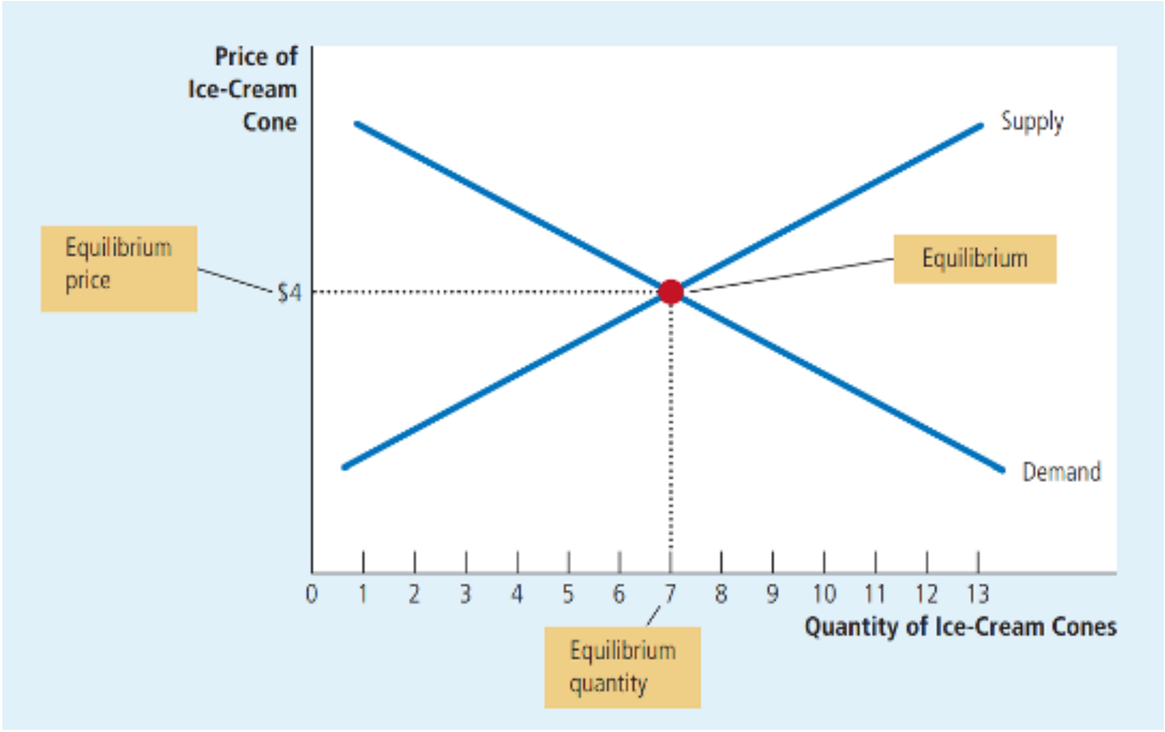
Equilibrium: Changes in Supply & Demand

Changes in Supply & Demand

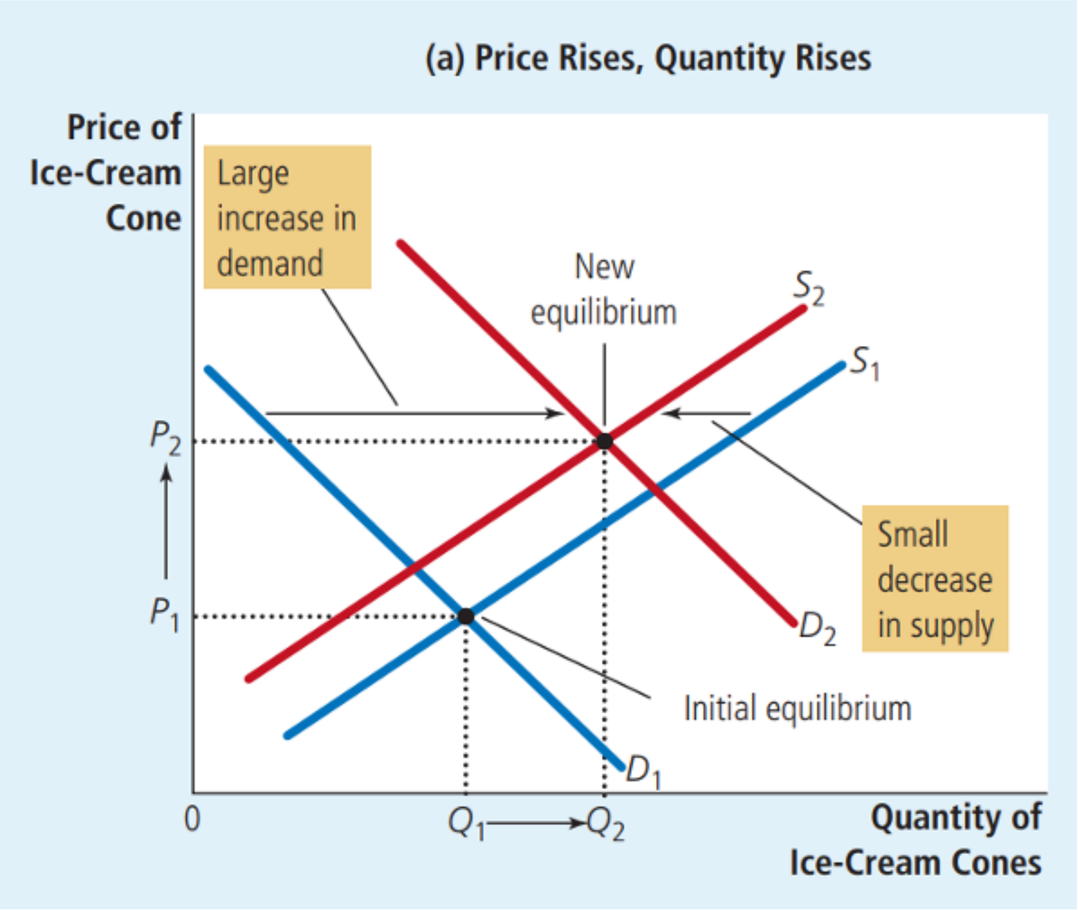
- In the real world, the prices of related goods & the prices of inputs change, affecting both the supply & demand equilibrium conditions simultaneously.
- Other factors, such as non-price determinants, affect both supply & demand too!
    - Analysis becomes more complex.

Example: Ice Cream Market

- Suppose and a heat wave hit simultaneously.
- How does this affect the market for ice cream?
- Remember the 3 steps…?

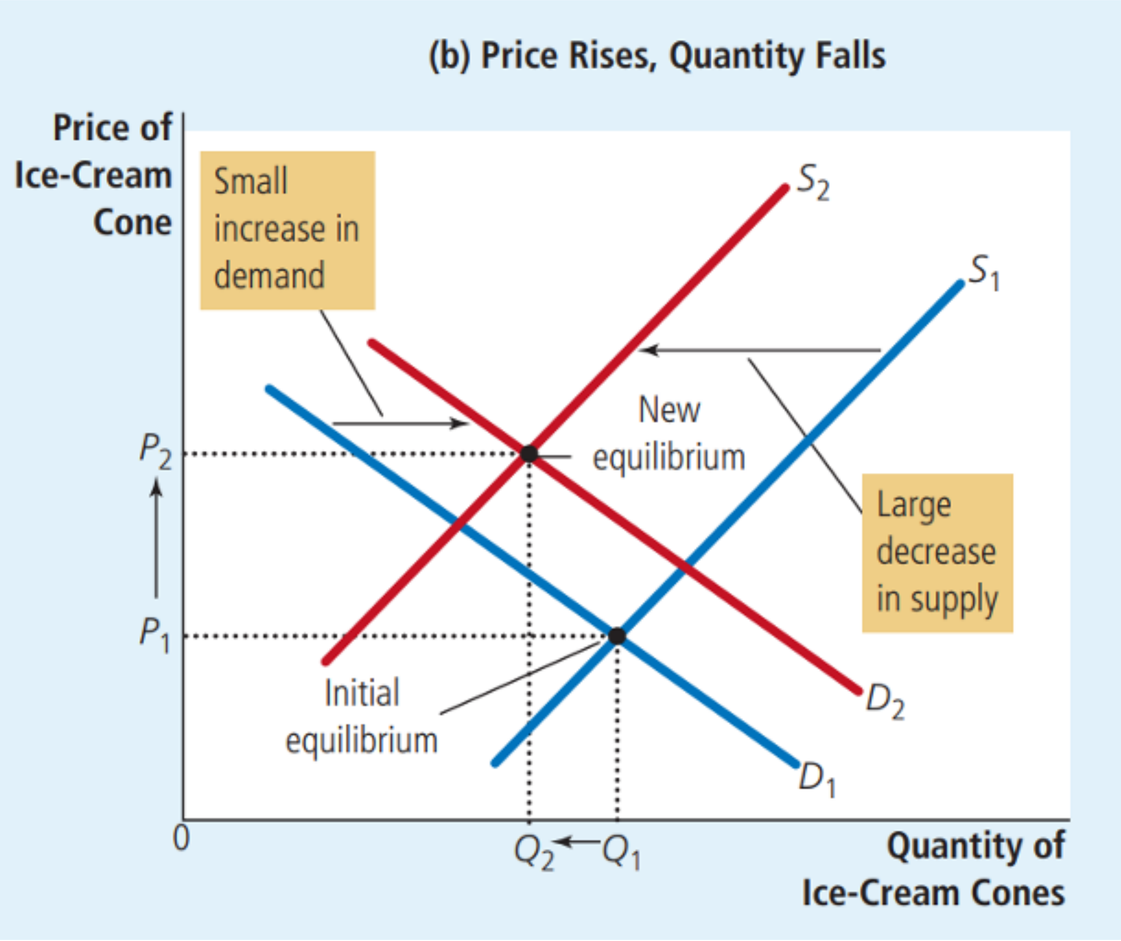


Example: Ice Cream Market



Following a *large increase in demand & a small decrease in supply*, equilibrium **price & quantity both increase**.

Example: Ice Cream Market



Following a *small increase in demand & a large decrease in supply*, equilibrium **price increases & quantity decreases**.

How Changes in Supply & Demand Affect P&Q

- When supply & demand both change, we can only know how ONE of the market variables (price or quantity) changes with confidence.
- The other variable is ambiguous, or indeterminant. It depends on the magnitude, or size, of the change.

How Changes in Supply & Demand Affect P&Q

- ↔D ↔S, then ↔P ↔Q
- ↑D ↔S, then ↑P ↑Q
- ↓D ↔S, then ↓P ↓Q
- ↑S ↔D, then ↓P ↑Q
- ↓S ↔D, then ↑P ↓Q
- ↑D ↑S, then ?P ↑Q
- ↓D ↓S, then ?P ↓Q
- ↓D ↑S , then ↓P ?Q
- ↓S ↑D, then ↑P ?Q

How Changes in Supply & Demand Affect P&Q

How Changes in Supply & Demand Affect P & Q

	No Change in Supply	An Increase in Supply	A Decrease in Supply
No Change in Demand	*P* same *Q* same	*P* down *Q* up	*P* up *Q* down
An Increase in Demand	*P* up *Q* up	*P* ambiguous *Q* up	*P* up *Q* ambiguous
A Decrease in Demand	*P* down *Q* down	*P* down *Q* ambiguous	*P* ambiguous *Q* down

So?

Equilibrium in the Real World

- The Forces of the Market are in constant motion. Supply & Demand both change!
- This leads to ever-changing equilibrium conditions, and analyzing these changes becomes more complex.
- Thank Heavens for the price system!

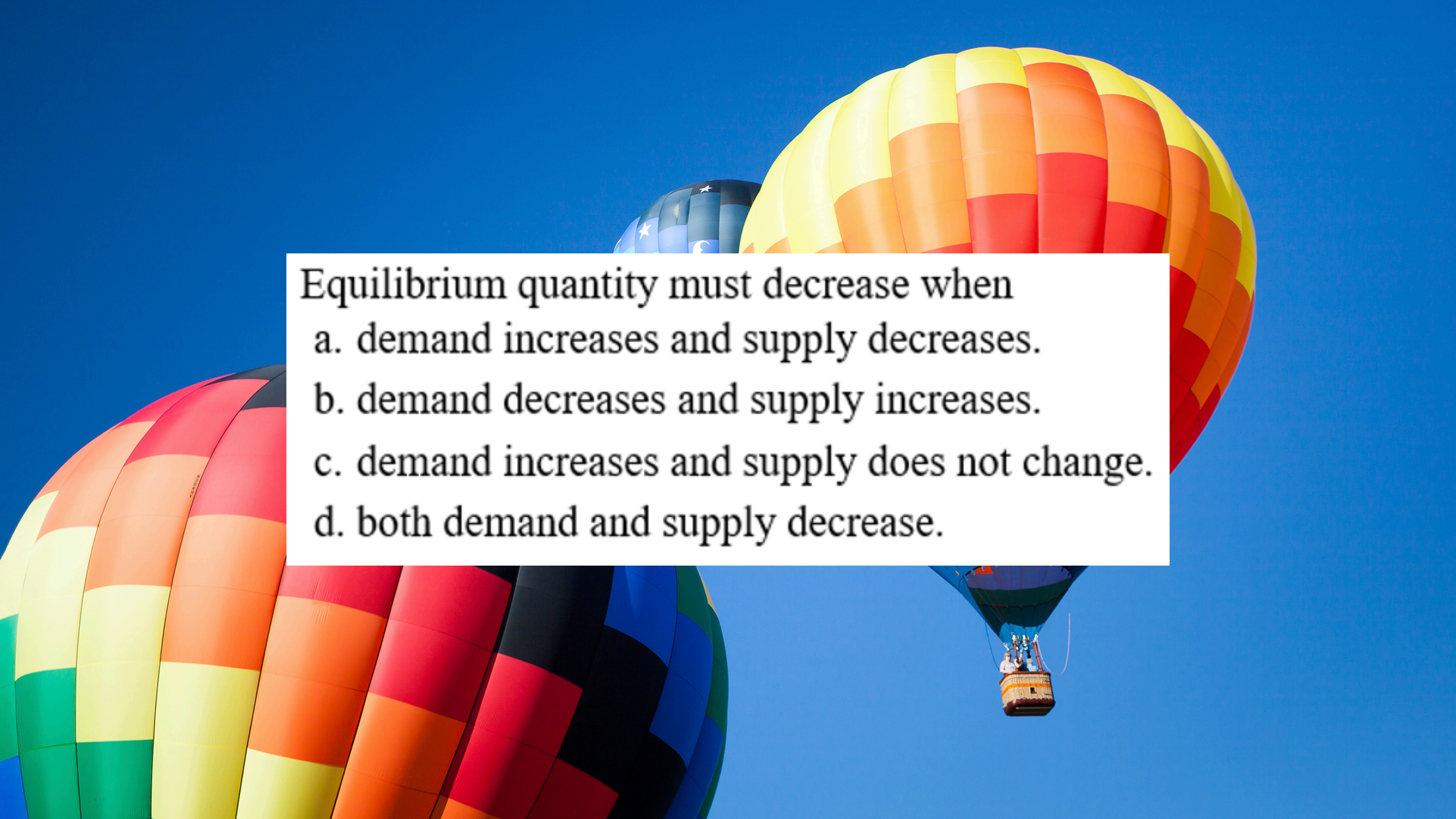
The Law of Supply & Demand

- The price of any good adjusts to bring the quantity supplied & quantity demanded into balance. Equilibrium!
- Surpluses & Shortages, Supply & Demand Shocks are temporary!
- If the price system is free to function, markets will clear (or equilibrate).

A Price is a signal, wrapped in an incentive!

- The price system is what makes supply & demand function.
- Price increases signal that a good is relatively more scarce.
- Incentivizes producers & consumers to either economize on the good or find alternatives. This is true in both good times & bad!

ECONOMICS IS EVERYWHERE



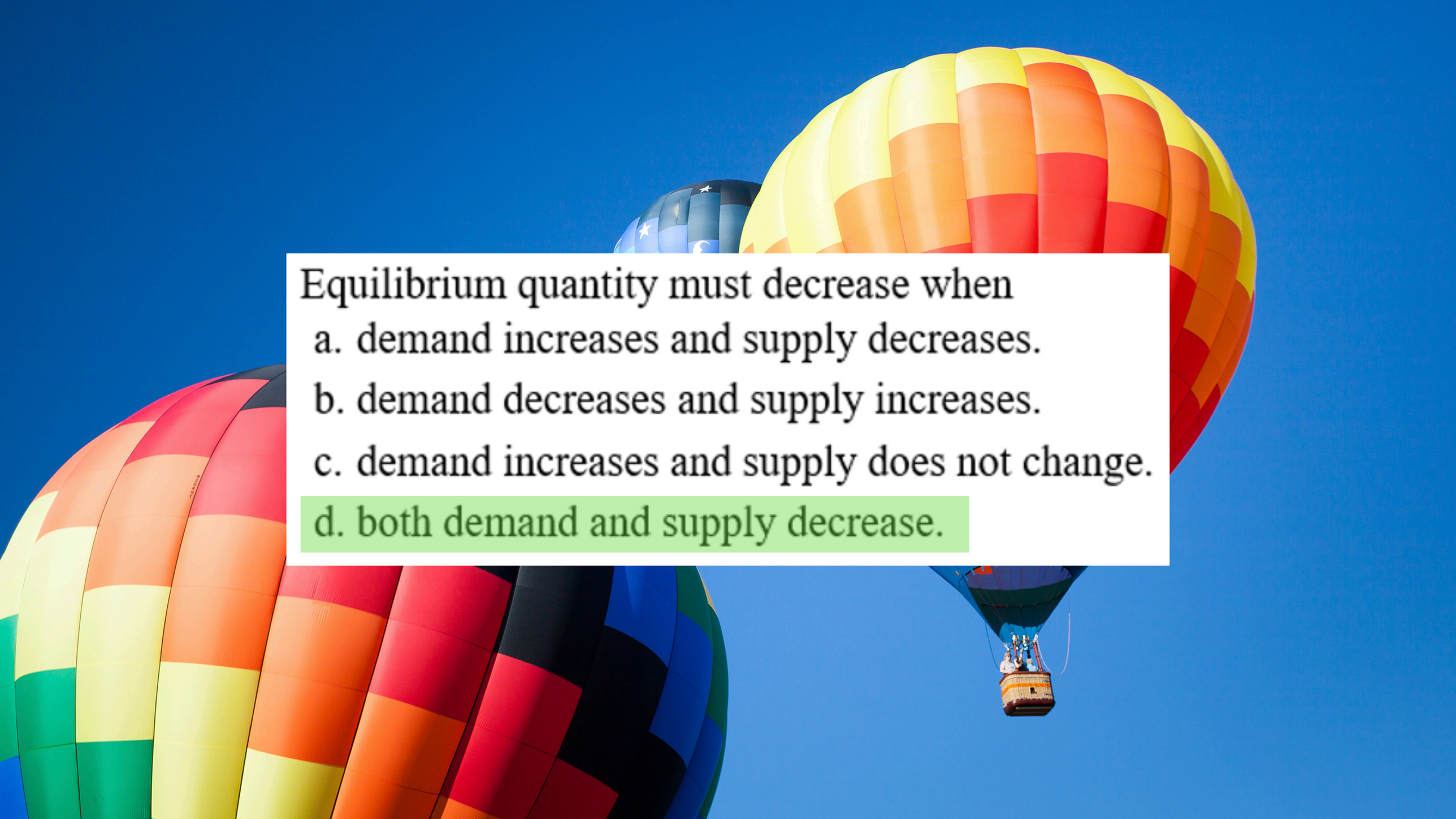
Equilibrium quantity must decrease when

a. demand increases and supply decreases.

b. demand decreases and supply increases.

c. demand increases and supply does not change.

d. both demand and supply decrease.



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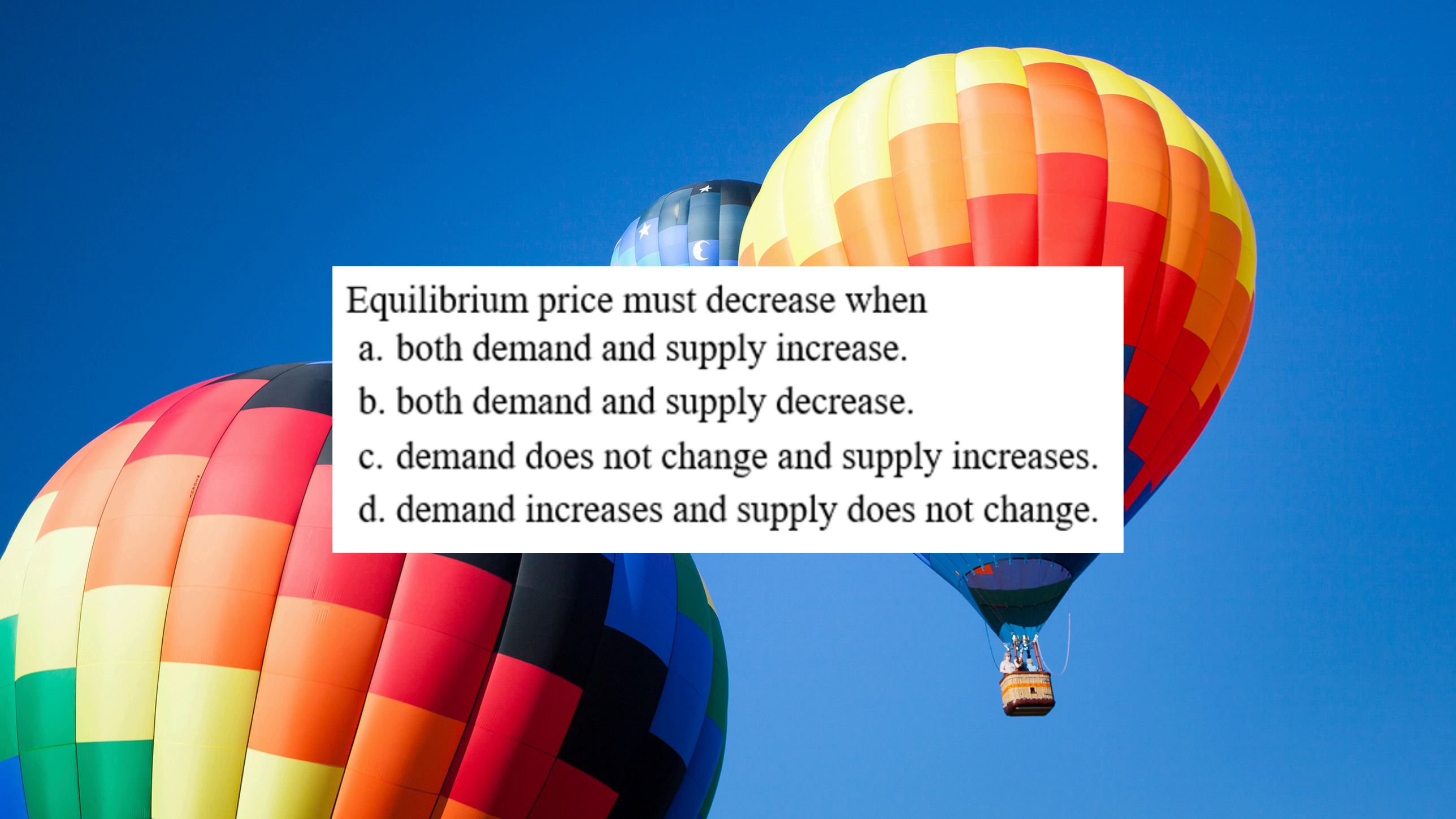


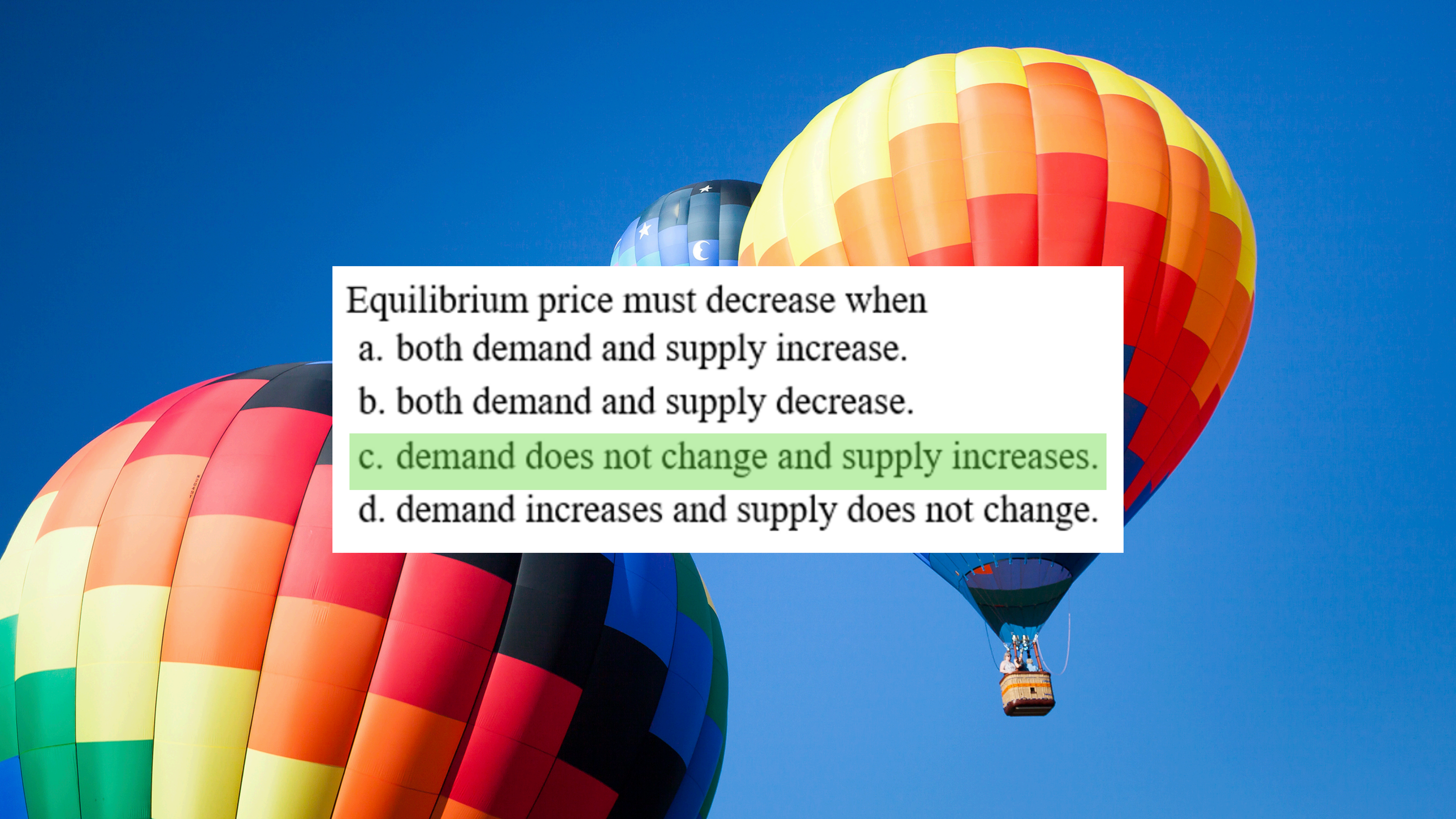
Equilibrium price must decrease when

a. both demand and supply increase.

b. both demand and supply decrease.

c. demand does not change and supply increases.

d. demand increases and supply does not change.



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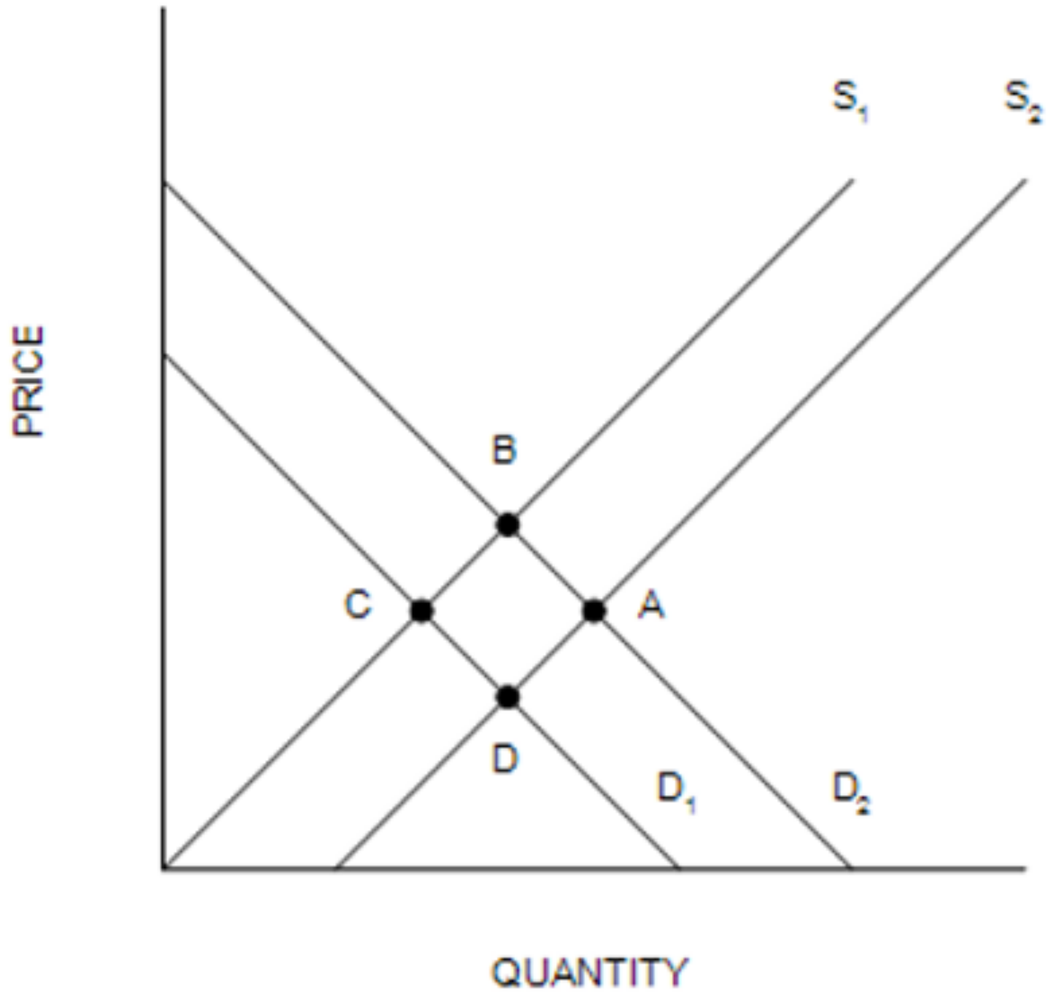


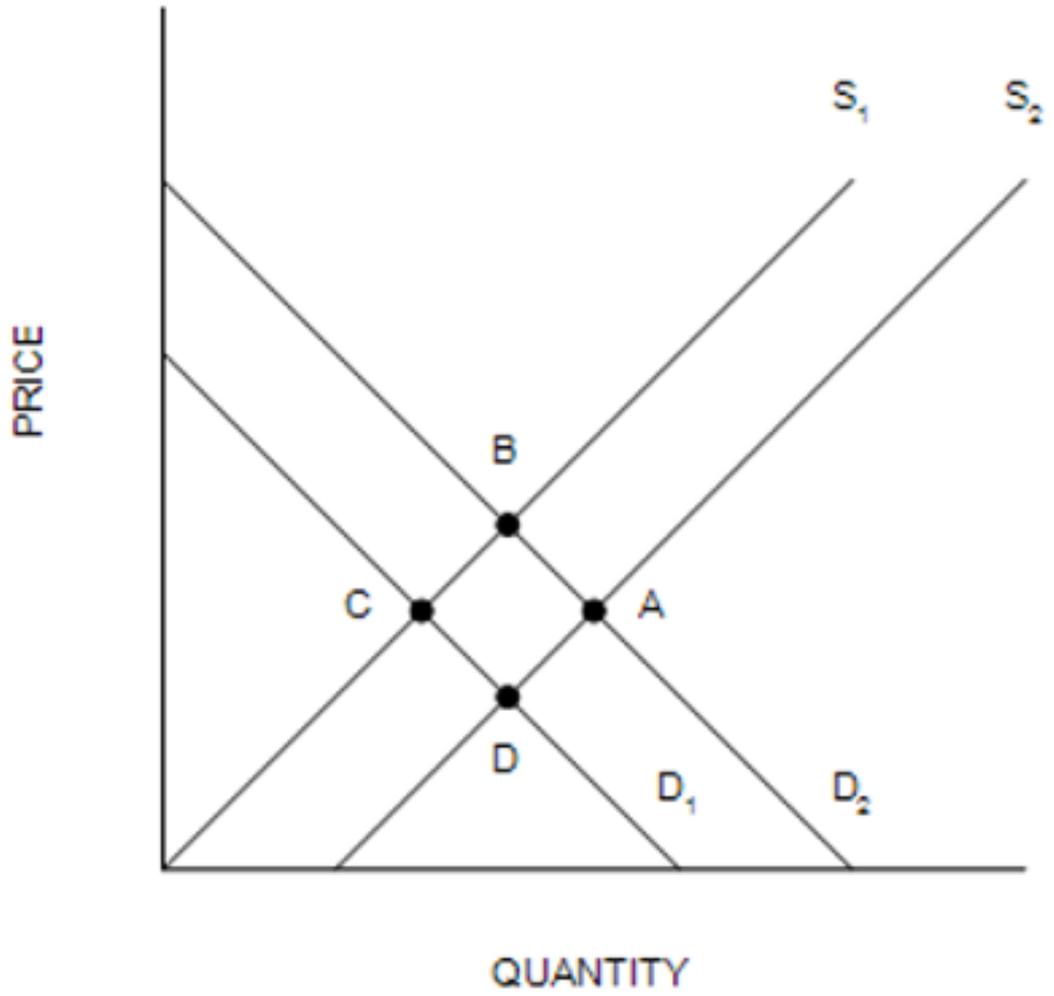
Which of the following movements would illustrate the effect of an increase in the price of beach towels on the market for bathing suits?

a. Point C to Point D

b. Point A to Point D

c. Point A to Point B

d. Point C to Point B



Which of the following movements would illustrate the effect of an increase in the price of beach towels on the market for bathing suits?

a. Point C to Point D

b. Point A to Point D

c. Point A to Point B

d. Point C to Point B

Thanks for your attention!
Class of end.