

# MAP 5

## Firm Supply, Surplus, Equilibrium

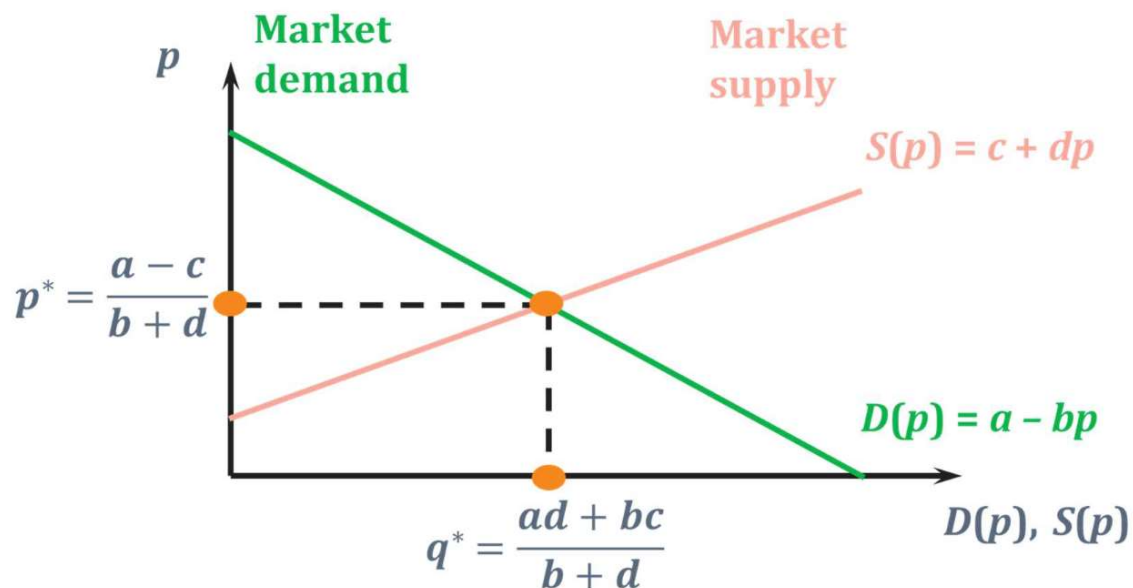
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15th October 2024

If the demand and supply functions for Coca-Cola are, respectively, given by  $D(p) = 50 - 2 \cdot p$  and  $S(p) = 20 + p$ , then imposing a 3€ per unit tax on each bottle supplied by the producer will:

- Decrease equilibrium quantity to 28 and leave unchanged the price that consumers pay.
- Decrease equilibrium quantity to 28 and increase the price that consumers pay by 1€.**
- Decrease equilibrium quantity by 2 and increase the price that consumers pay by 3€.
- Decrease equilibrium quantity by 4 and increase the price that consumers pay to 11€.

## Market Equilibrium – 10



$$D(p) = S(p)$$

$$50 - 2 \cdot p = 20 + p$$

$$p^* = \frac{50 - 20}{2 + 1} = 10$$

$$Q^* = D(p^*) = S(p^*) = 30$$

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$$p(S) = p(D) - t \quad t = 3$$

$$D(p) = S(p)$$

$$50 - 2 \cdot p(D) = 20 + p(D) - 3$$

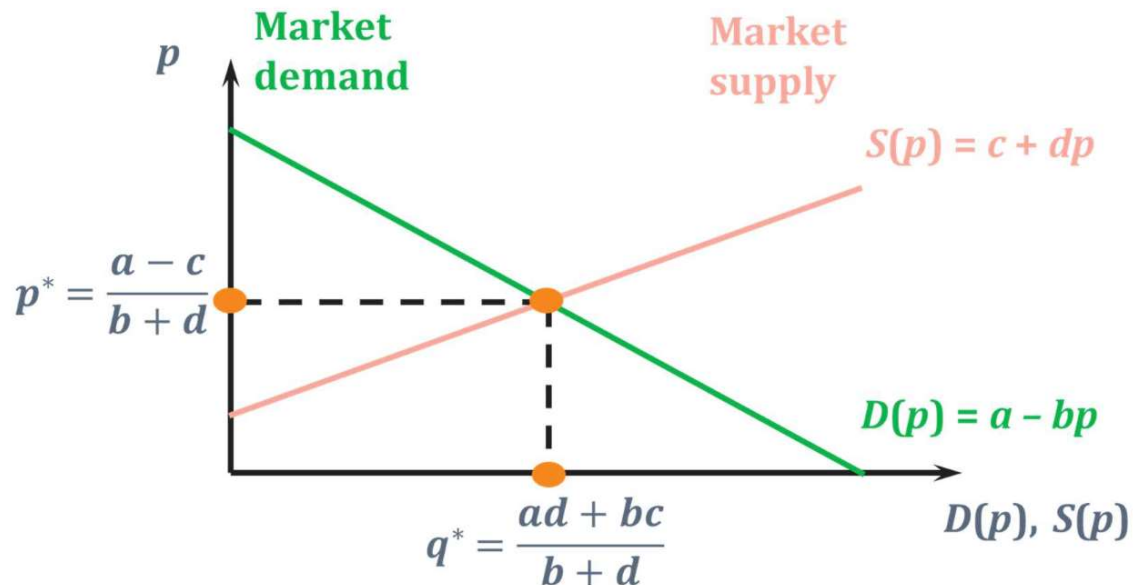
$$p(D) = 11$$

$$D(p = 11) = 28$$

If the demand and supply functions for Coca-Cola are, respectively, given by  $D(p) = 35 - p$  and  $S(p) = 15 + p$ , then imposing a 2€ per unit tax on each bottle supplied by the producer will:

- Decrease equilibrium quantity by 3 and increase the price that consumers pay to 11€.
- Decrease equilibrium quantity by 1 and increase the price that consumers pay by 3€.
- Decrease equilibrium quantity to 24 and increase the price that consumers pay by 1€.**
- Decrease equilibrium quantity to 24 and leave unchanged the price that consumers pay.

## Market Equilibrium – 10



$$D(p) = S(p)$$

$$35 - p = 15 + p$$

$$p^* = \frac{35 - 15}{1 + 1} = 10$$

$$Q^* = D(p^*) = S(p^*) = 25$$

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$$p(S) = p(D) - t \quad t = 2$$

$$D(p) = S(p)$$

$$35 - p(D) = 15 + p(D) - 2$$

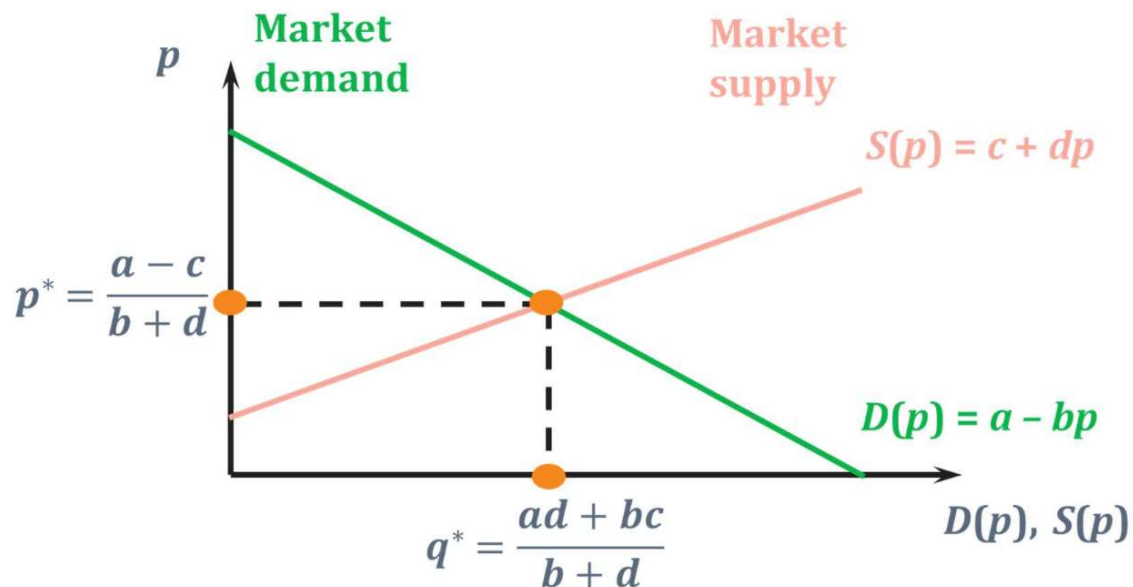
$$p(D) = 11$$

$$D(p = 11) = 24$$

If the demand and supply functions for Coca-Cola are, respectively, given by  $D(p) = 85 - 3.p$  and  $S(p) = 45 + p$ , then imposing a 4€ per unit tax on each bottle supplied by the producer will:

- Decrease equilibrium quantity by 3 and increase the price that consumers pay by 3€.
- Decrease equilibrium quantity by 6 and increase the price that consumers pay to 11€.
- Decrease equilibrium quantity to 52 and leave unchanged the price that consumers pay.
- Decrease equilibrium quantity to 52 and increase the price that consumers pay by 1€.**

## Market Equilibrium – 10



$$D(p) = S(p)$$

$$85 - 3.p = 45 + p$$

$$p^* = \frac{85 - 45}{3 + 1} = 10$$

$$Q^* = D(p^*) = S(p^*) = 55$$

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$$p(S) = p(D) - t \quad t = 4$$

$$D(p) = S(p)$$

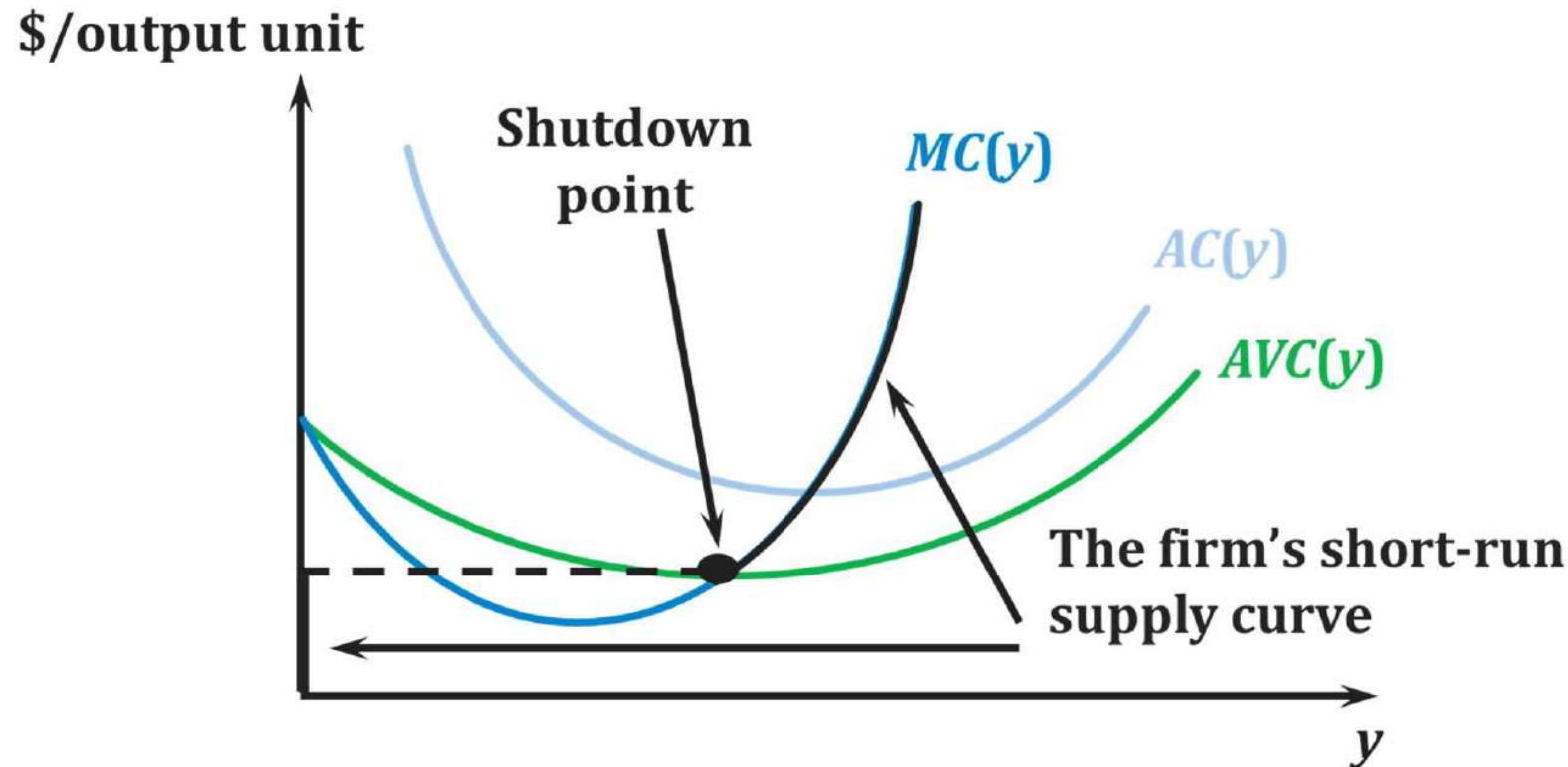
$$85 - 3.p(D) = 45 + p(D) - 4$$

$$p(D) = 11$$

$$D(p = 11) = 52$$

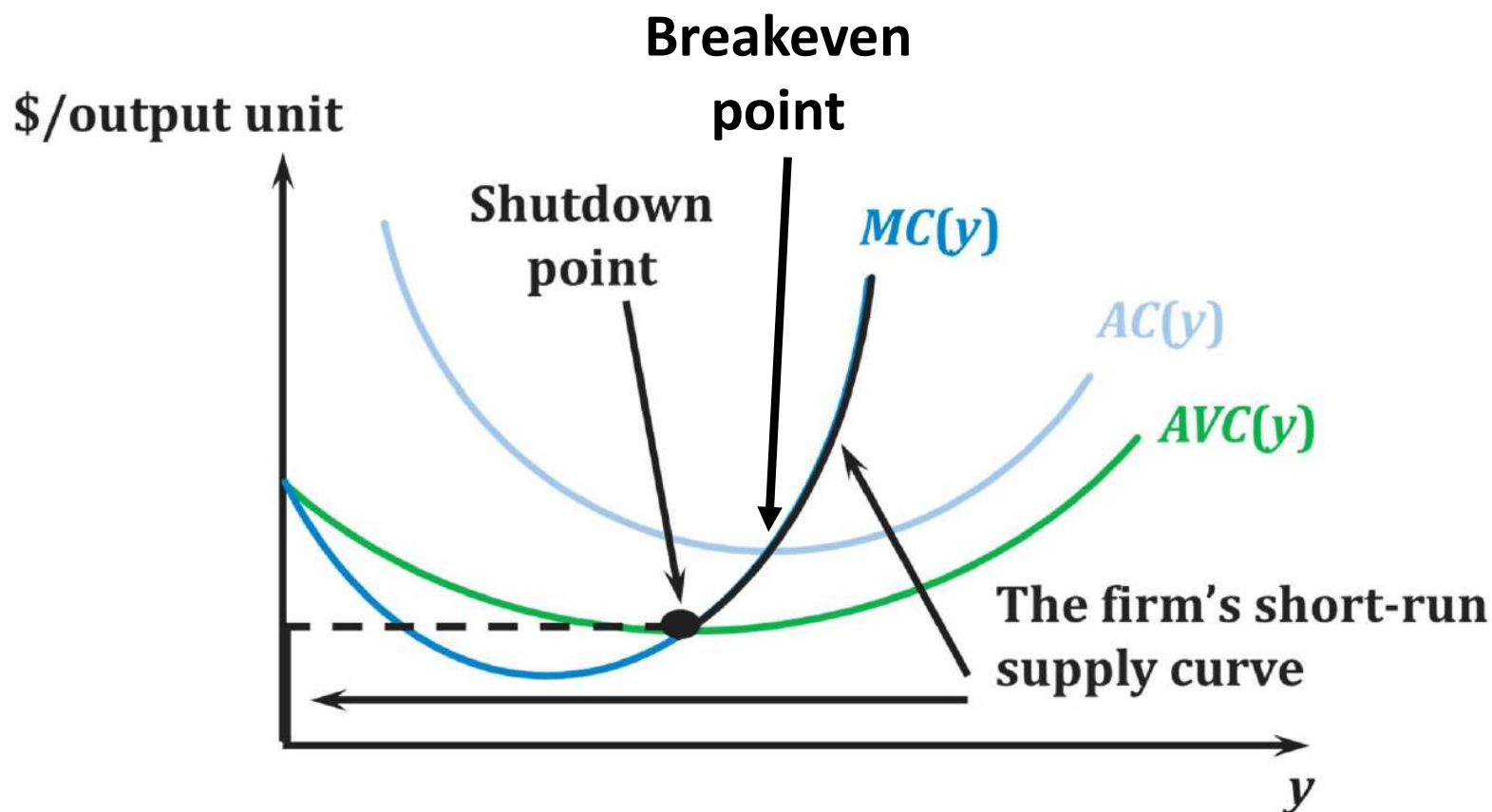
In the short-run, the shutdown point occurs at the level of output for which the \_\_\_\_\_ is at its minimum.

- a. Marginal cost.
- b. Variable cost.
- c. Average fixed cost.
- d. Average variable cost.**



In the short-run, the breakeven point occurs at the level of output for which the \_\_\_\_\_ is at its minimum.

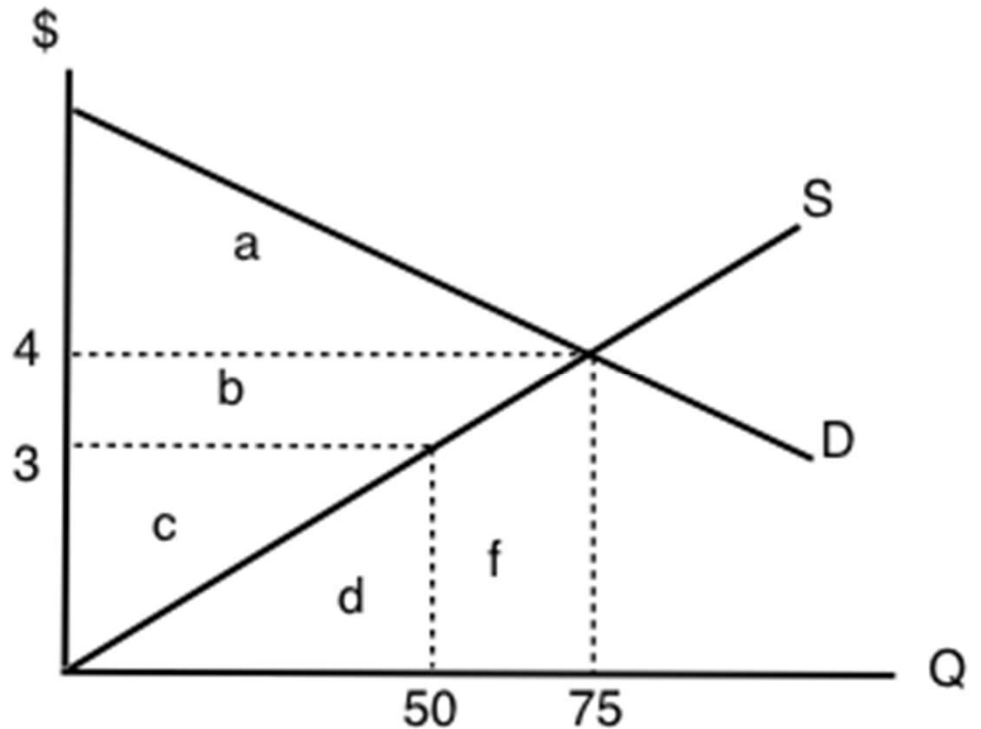
- a. Average fixed cost.
- b. Average total cost.**
- c. Marginal cost.
- d. Average variable cost.



Consider the diagram below.

At the equilibrium in this market, consumer surplus is equal to area \_\_\_\_\_ and producer surplus is equal to area \_\_\_\_\_.

- a.  $a+b$ ;  $c$
- b.  $a+b$ ;  $b+c$
- c.  $a$ ;  $b+c$**
- d.  $a+b+c$ ;  $d+f$



If you pay a price exactly equal to your willingness to pay, then:

- a. **Your consumer surplus is zero.**
- b. Your consumer surplus is positive.
- c. Your consumer surplus is negative.
- d. You place little value on the good.

**Correct answer.**

Consumer surplus is the difference between what you are willing to pay for a good or service (your willingness to pay) and what you actually pay for it.

If you pay the exact price you are willing to pay, there is no surplus or additional benefit; it's a situation where you've maximized your utility but do not have any extra value or surplus.

Therefore, the consumer surplus is zero in this case.

