Unit 7. Firm behaviour and market structure: monopoly

Quiz

1. What of the following can be considered as the measure of a market power?

A. $\frac{P-MC}{P}$;

B. $-\frac{1}{E_p^d}$;

C. $\frac{P-MC}{MC}$;

D. Answers A and B are both correct;

E. All of the above

The answer is D.

Lerner index is the measure of the ability of a firm to raise the price for its product above the level of marginal cost:

$$L = \frac{p - MC}{p}.$$

Use the first order profit-maximizing condition and the expression for marginal revenue to get:

$$L = \frac{p - MC}{p} = \frac{p - MR}{p} = \frac{p - p\left(1 + \frac{1}{E_p^d}\right)}{p} = -\frac{1}{E_p^d}.$$

2. If a monopolist increases output, it yields

A. cutting down price;

B. an increase in total revenue of the firm;

C. an increase in profit of the firm

D. answers A and B are both correct;

E. all of the above

The answer is D.

The law of demand says that there is a descending correspondence between output and price. It has any sence for a firm to produce at the positive segment of MR curve. It impies that total revenue is an increasing function of output. Use the expression of marginal revenue (see above) to conclude that price elasticity of demand is less than -1.

3. A price-discriminating monopoly

A. has a demand curve that is more elastic than that of a non-discriminating monopoly

B. earns less revenue than a non-discriminating monopoly

C. earns more revenue than a non-discriminating monopoly

D. will produce less output than a non-discriminating monopoly

E. has a marginal revenue curve that is situated below the marginal revenue curve of a non-discriminating monopoly

The answer is C.

The price-discriminating monopoly produces the same volume of output as the non-discriminating one. The discriminating monopoly distributes its output between the segments of market demand so as to equate the corresponding levels of marginal revenue:

$$MR_1 = p_1\left(1 + \frac{1}{E_p^{d_1}}\right) = MR_2 = p_2\left(1 + \frac{1}{E_p^{d_2}}\right) = MC,$$

where $MR_1 = p_1\left(1 + \frac{1}{E_p^{d_1}}\right)$ and $MR_2 = p_2\left(1 + \frac{1}{E_p^{d_2}}\right)$ are the levels of marginal revenue at the first and the second segments of market demand. The price-discriminating monopoly has an incentive to increase output sold at the more elastic segment of market demand and to decrease by the same quantity the supply to the less elastic segment of market demand as compared to non-discriminating firm so as the increase of total revenue at the more elastic segment overwhelms the decrease at the less elastic one.

4. A monopoly is less efficient as compared to a perfectly competitive market because

A. a monopoly produces a higher output level and sells for a higher price

B. a monopoly produces a lower output level and sells for a higher price

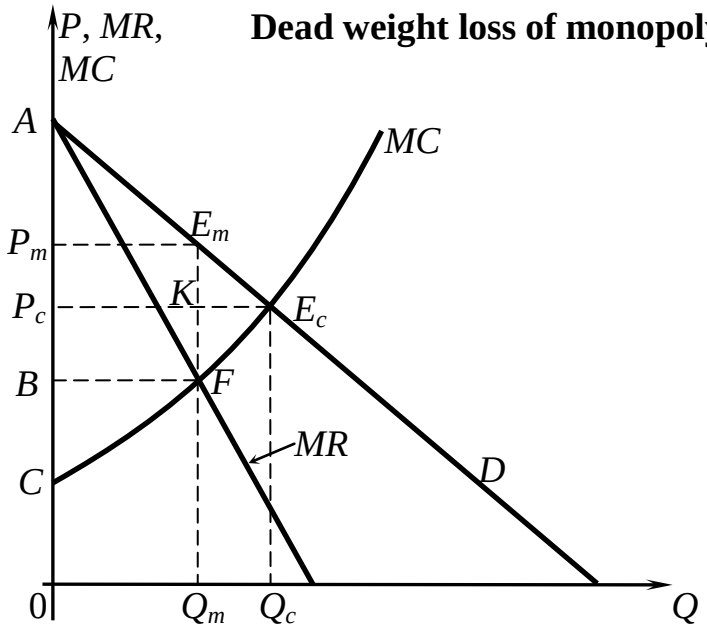
C. a monopoly can make profit in the short run but not in the long run

D. a perfect competitor breaks even in the short run and the monopoly does not

E. a monopoly is allocatively efficient where as the perfect competitor is efficient in production.

The answer is B.

In the figure below Q_m and P_m, Q_c and P_c are the level of output and price correspondingly in case of monopoly and perfect competition in the market.



5. The whole consumer surplus is appropriated by:

A. a monopoly;

B. a monopoly that practices perfect price discrimination;

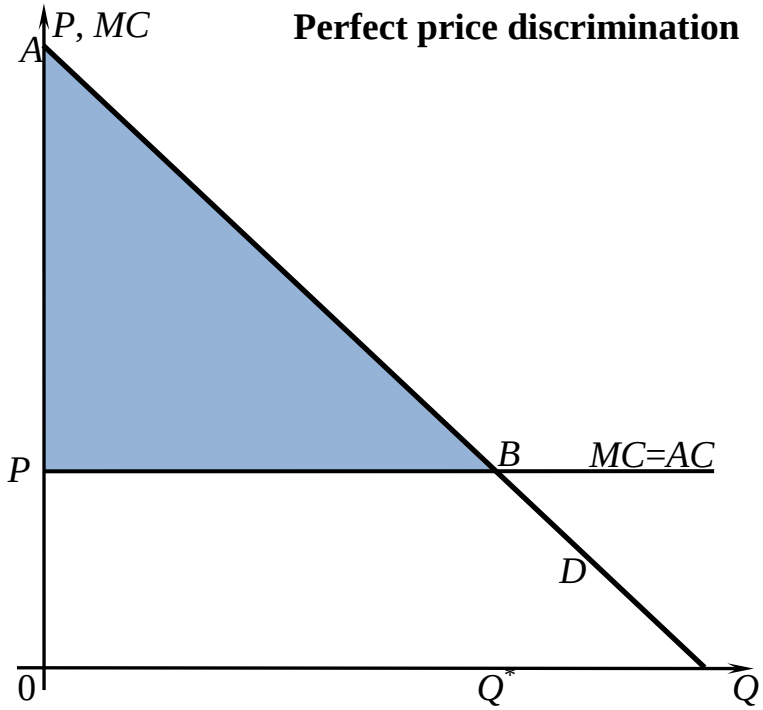
C. a perfectly competitive firm;

D. a firm that gains advantages of market segmentation.

E. none of the above.

The answer is B.

Unlike nondiscriminating monopoly there is no dead weight loss under perfect price discrimination because the monopoly produces the competitive output and the whole consumer surplus is appropriated by the firm. It constitutes the firm's profit (triangle *PAB* on the figure below).



6. A monopoly operates in a market with linear downward sloping demand curve. The firm produces output level where *MR*=180, *MC*=100, *AVC*=180. To maximize profit the firm is supposed to:

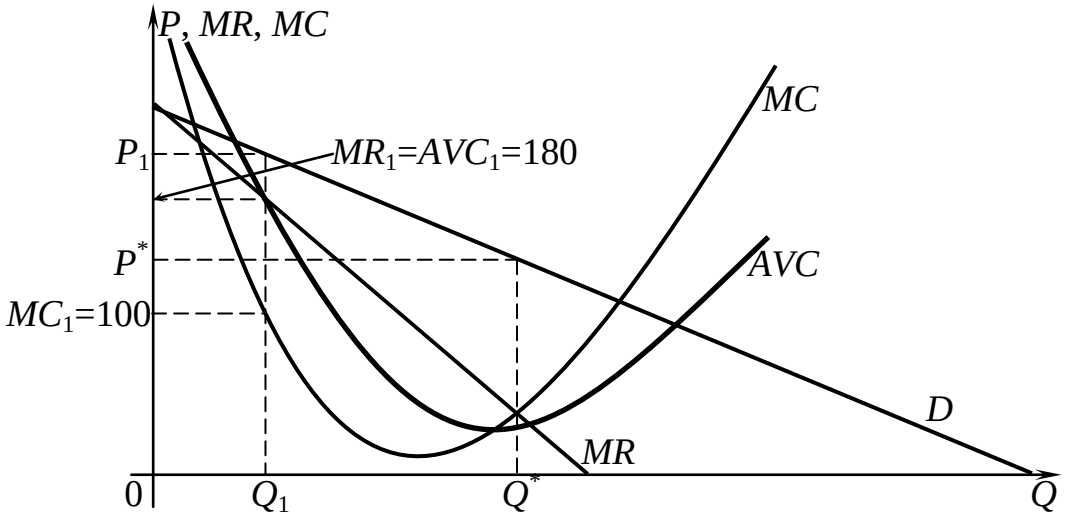
A. raise price and output;

B. raise price and decrease output;

C. reduce price and increase output;

D. reduce price and output.

E. none of the above.



The answer is C.

MR>MC, so it pays for the firm to increase output because additional quantity of the good produced brings extra profits for the firm. *P>AVC*, so the firm won't shut down even if it incurs losses.

7. Unlike a competitive firm, a monopoly:

A. is able to set any price for its product;

B. maximizes profits when marginal revenue is equal to marginal cost;

C. is able to produce any output and sell at any price it likes;

D. determines the combination of price and output that maximizes profit within given market demand.

E. none of the above.

The answer is D.

The answers A to C are true both for a monopoly and for a competitive firm. Unlike a perfect competitor a monopoly can vary the price for its product choosing the profit-maximizing output in accordance with market demand schedule.

8. Suppose that a monopoly produces with zero variable costs, so that fixed cost coincides with total cost. It implies that Lerner index:

A. tends to infinity;

B. equals 1;

C. is greater than 0 but less than 1;

D. equals 0;

E. none of the above.

The answer is B.

MC is zero, so the difference between price and marginal cost equals price. It implies: $L = \frac{p-MC}{p} = \frac{p}{p} = 1$.

9. Choose the correct statement:

A. A monopoly always operates in inelastic region of market demand.

B. A monopoly can raise total profit charging different prices for its product in different segments of market demand

C. Both a monopoly and a perfectly competitive firm maximize profits according to the rule: *MC=P*.

D. When a monopoly is producing the profit-maximizing output level in the long run it earns the highest possible total revenue.

E. None of the above.

The answer is B.

Price discrimination that exploits the opportunities of market segmentation is a way to increase profits.

10. Assume that a profit-maximizing monopoly operates in a market with a linear demand curve. Suppose that the marginal cost curve for the firm is a horizontal straight line. *MC* equals 25 roubles regardless output level. Suppose that government imposes a per-unit tax of *t* roubles per unit of the product of the firm. In this case

A. the firm will expand output and cut down price;

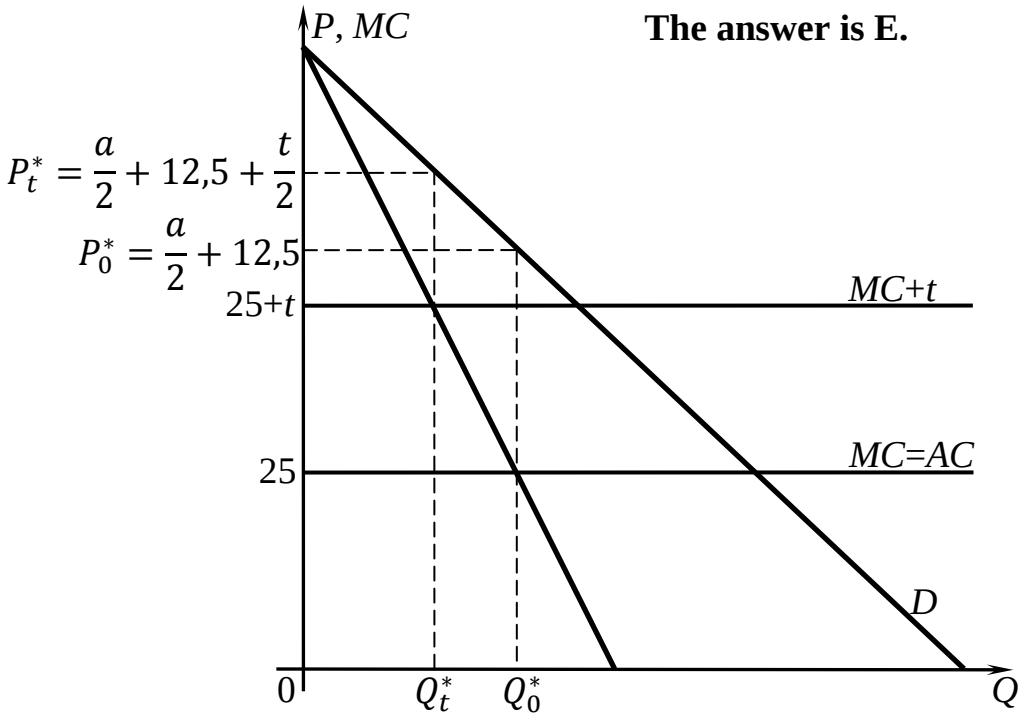
B. the firm's output level will become *t*/2 times smaller and the price will become *t* times higher as compared to initial situation of an unregulated monopoly;

C. the firm will increase price by *t*/2 rubles;

D. the firm will cut down output and raise the price;

E. answers C and D are both correct.

The answer is E.



Let be the market demand curve. Use the first order condition of profit maximization $a - 2bQ_0^* = 25$ to calculate optimal output without government control: $Q_0^* = \frac{a-25}{2b}$. The corresponding profit-maximizing

price is: $P_0^* = a - bQ_0^* = a - b\frac{(a-25)}{2b} = \frac{a}{2} + 12{,}5$. A per-unit tax shifts *MC* curve by *t* roubles above (see the figure above). The new profit-maximization condition is: $a - 2bQ_t^* = 25 + t$. Optimal output with the per-unit tax is $Q_t^* = \frac{a-25-t}{2b}$, that yields the $\frac{t}{2}$ rubles increase in price:

$$P_t^* = a - bQ = a - b\frac{(a-25-t)}{2b} = \frac{a}{2} + 12{,}5 + \frac{t}{2}.$$