



Microeconomics (11062)

Winterterm 2008/2009

Mon, Feb 16, 2009, 8.00-10.00 a.m.

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Name: _____

Matr.-No.: _____

- **Available time:** 120 min.
- **Achievable points:** 120 (max.)
- **Permitted aid:** Non-programmable pocket calculator
- **General information:**

1. You have 30 questions. In all questions *one answer* out of three is correct.
2. Points are given as follows

You marked...	You get ... points
the correct answer	4
a false answer	-2
no answer at all	0
(correct <i>and</i> false answers)	(0)

3. Mark your answers *clearly and unambiguously* in the enclosed answer sheet. Use a document-proof pen (no pencil) for your final answers. In case you need to correct your choice make it really clear what your final choice is (if *really* necessary with the help of words but generally avoid words on the answer sheet!)
4. Feel free to use the empty space on the present question-sheet for your personal calculations or notes. Note: **Whatever you write on these pages will be ignored during correction!** Only the answer sheet will eventually be evaluated.

GOOD LUCK!

Question 1 (Price elasticity)

The price of DVDs falls from €24 to €18. As a result, sales increase from 50000 units to 85000 units. Then, the *price elasticity of demand* is

1. $\varepsilon = -3.2$
2. $\varepsilon = -2.8$
3. $\varepsilon = -0.36$

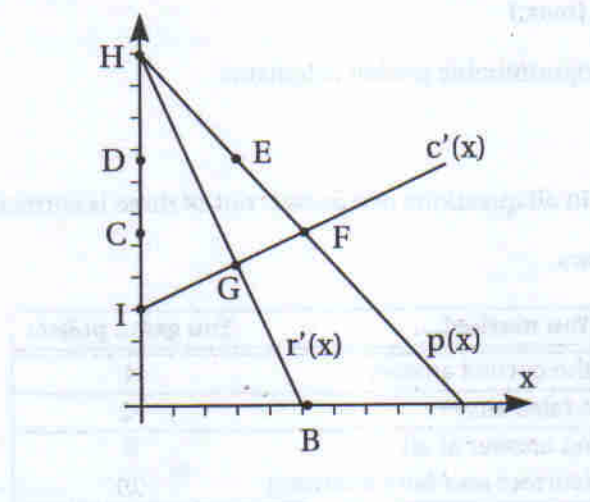
Question 2 (Cross price elasticity)

Cross price elasticity (of demand) is defined as...

1. ... percentage change of demand for good i divided by percentage change of price of good j .
2. ... percentage change of price of good i divided by percentage change of demand for good j .
3. ... percentage change of demand for good i divided by percentage change of price of good i .

Question 3 (Monopoly and welfare loss)

In the figure below $c'(x)$ is the marginal cost curve and $r'(x)$ is the marginal revenue of a *monopoly*. Let $p(x)$ represent the inverse market demand curve, which area represents the *deadweight loss* (compared to a competitive equilibrium)?



1. GFB
2. GFE
3. There is no deadweight loss in this situation.

Question 4 (Monopoly and consumer surplus)

Consider the situation of question 3. Which area represents the *consumer surplus*?

1. CFI
2. CFH
3. DEH

Question 5 (Regulating monopolies)

Should a monopoly be always regulated in a way that the efficient output is supplied and $p(y) = c'(y)$ holds?

1. Yes, keeping efficiency is everything policy needs to consider, no matter what perspective.
2. Not necessarily. If the efficient price is below minimum average costs the monopoly will leave the market and supply breaks down (natural monopoly).
3. No, because monopolies should not be regulated at all, no matter what perspective.

Question 6 (Household choice)

Fred's utility function on fries (x_1) and coke (x_2) is $u(x_1, x_2) = 2\sqrt{x_1} + x_2$. Fries cost $p_1 = 3$ Euro per unit. By consuming $x_1^* = 9$ units of fries and some units of coke he maximizes his utility to a value of $u(x_1^*, x_2^*) = 30$. How much money did he spend?

1. 243 Euro
2. 234 Euro
3. 342 Euro

Question 7 (Perfect competition)

The demand which a single firm faces in *perfect competition* is ...

1. ... perfectly elastic.
2. ... perfectly inelastic.
3. ... an in-between of the above cases 1. and 2.

Question 8 (Revealed preferences)

At 2 different price systems p, q a consumer chose 2 different bundles x, y as given in this table:

Prices	Bundle chosen
$p = (4, 1)$	$x = (6, 1)$
$q = (3, 2)$	$y = (3, 5)$

Does the consumer violate the *Weak Axiom of Revealed Preferences (WARP)*?

1. Yes.
2. No.
3. Cannot be determined without further information.

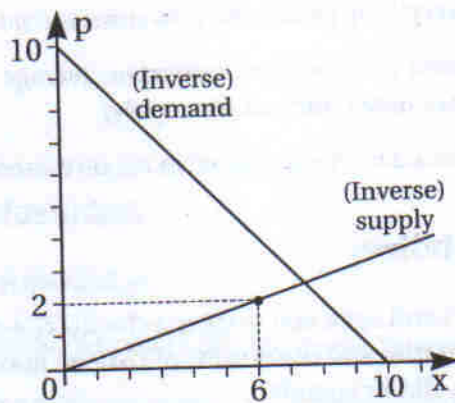
Question 9 (Price discrimination)

Given *first-degree price discrimination*...

1. ... a monopoly produces a pareto-efficient quantity.
2. ... there is a positive consumer's surplus.
3. ... a monopoly goes out of business.

Question 10 (Welfare and tax t)

Assume that the market below is in its equilibrium. What is the *deadweight loss* due to a quantity tax $t = 2$? (Hint: The corresponding triangle is half the area of the rectangle in which it lies)



1. 1
2. 1.5
3. 2

Question 11 (Welfare and tax)

Assume that the supply in question 10 becomes *perfectly elastic*. Then the tax will be paid...

1. ... only by the producer.
2. ... only by the consumer.
3. ... by both, but less by the producer.

Question 12 (Monopolistic competition)

In a *monopolistic competition* new firms will stop entering the market and produce similar but distinctive products if the demand curve they would face will be...

1. ... tangent to the average cost curve.
2. ... tangent to the isoquant.
3. ... nothing of the above. New firms will not enter at all.

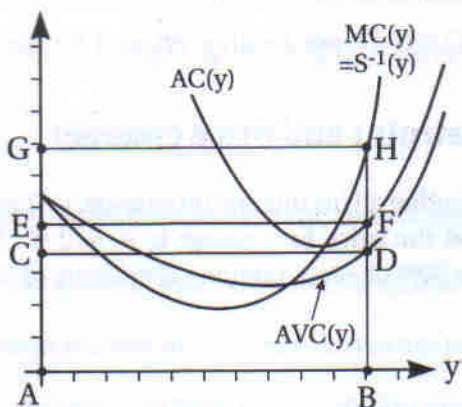
Question 13 (Producer theory)

The area below the *marginal cost curve* represents

1. Producer's surplus
2. Total revenue
3. Total (variable) costs

Question 14 (Cost functions and producer theory)

In the following graph $AC(y)$ represents average costs, $AVC(y)$ average variable cost and $MC(y)$ marginal cost. Assume a supply given by point B . Which area represents the *producer's profit*?



1. $ABHG$
2. $CDHG$
3. $EFHG$

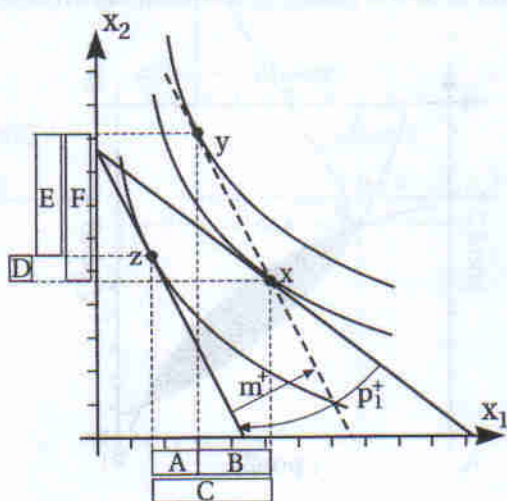
Question 15 (Slutsky: Compensation)

A consumer's Marshall demand for good 1 is $x_1^* = \frac{m}{2p_1}$ and her income is $m = 1200$. The price of good 1 rises from $p_1 = 5$ to $p_1^+ = 8$. How much money needs to be given to the consumer to make the former bundle affordable again?

1. 360
2. 630
3. 306

Question 16 (Slutsky: Cross effects)

Consider the following graphic in which A is the income effect, B is the substitution effect and C is the total effect due to a price increase of good 1.



Then...

1. ... D is the cross-total-eff., E is the cross-income-eff. and F is the cross-substitution-eff.
2. ... F is the cross-total-eff., E is the cross-income-eff. and D is the cross-substitution-eff.
3. ... E is the cross-total-eff., D is the cross-income-eff. and F is the cross-substitution-eff.

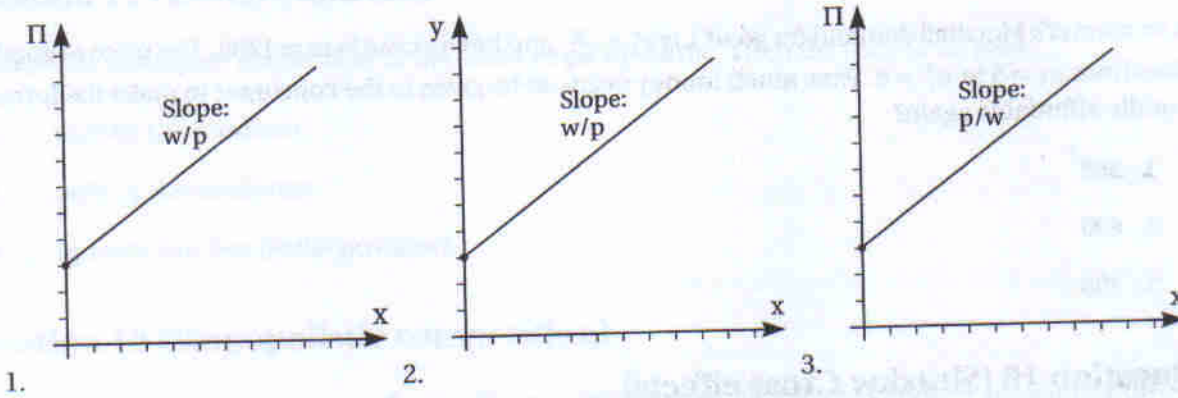
Question 17 (Budget constraint and price change)

A consumer maximizes utility spending all his income on sausage (x_1) and nothing on beer (x_2). Currently the income is $m = 8 \text{ €}$ and the price for sausage is $p_1 = 2 \text{ €}$. How many sausages will the consumer buy if sausages become 30% cheaper (assume divisibility of sausages)?

1. 7.5
2. 5.7
3. 7.7

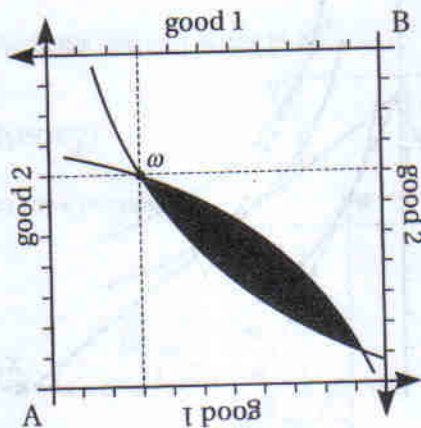
Question 18 (Producer theory)

Let π be profit, x be input, y be output, p the output price and w the factor price. Which of the following three graphs represents an *iso-profit line*?



Question 19 (Exchange)

In the following *Edgeworth Box* let ω be the initial endowment of two economic actors:



What is correct?

1. All allocations outside the greyed "lens" are blocked by both economic actors.
2. All allocations outside the greyed "lens" are blocked by at least one economic actor.
3. All allocations inside the greyed "lens" are blocked by both economic actors.

Question 20 (Exchange)

Consider the previous *Edgeworth Box*. Given monotonic and continuous preferences then...

1. ... all allocations inside the greyed "lens" are pareto-efficient.
2. ... all allocations on each of the two indifference curves are pareto-efficient.
3. ... all allocations where the marginal rates of substitution match are pareto-efficient.

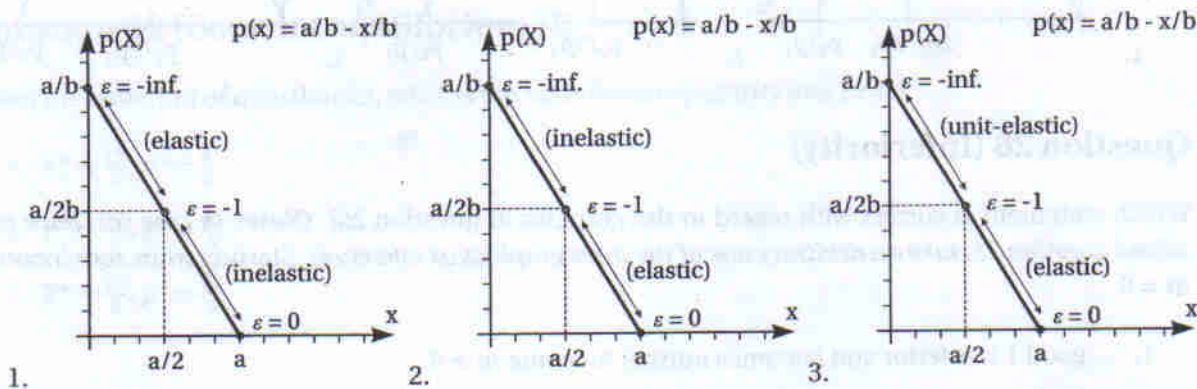
Question 21 (Intertemporal choice)

Consider a lender with an endowment of $m_0 = 5$ (today) and $m_1 = 2.8$ (tomorrow). His desired consumption path over time is $c_0 = 3$ (today) and $c_1 = 5$ (tomorrow). Prices are at all points of time equal to 1. At which interest rate r must the lender be able to lend in order to make his consumption path just affordable?

1. $r = 20\%$
2. $r = 15\%$
3. $r = 10\%$

Question 22 (Price elasticity)

Consider the inverse demand function $p(x) = \frac{a}{b} - \frac{1}{b}x$. Which one of the following graphs is correct with regard to the *price elasticity of demand* ϵ ?



Question 23 (Walras' Law)

Walras' Law states that...

1. The total value of aggregate excess demands (of all goods) is equal to zero for all prices except the equilibrium prices.
2. The total value of aggregate excess demands (of all goods) is equal to one for all prices.
3. The total value of aggregate excess demands (of all goods) is equal to zero for all prices.

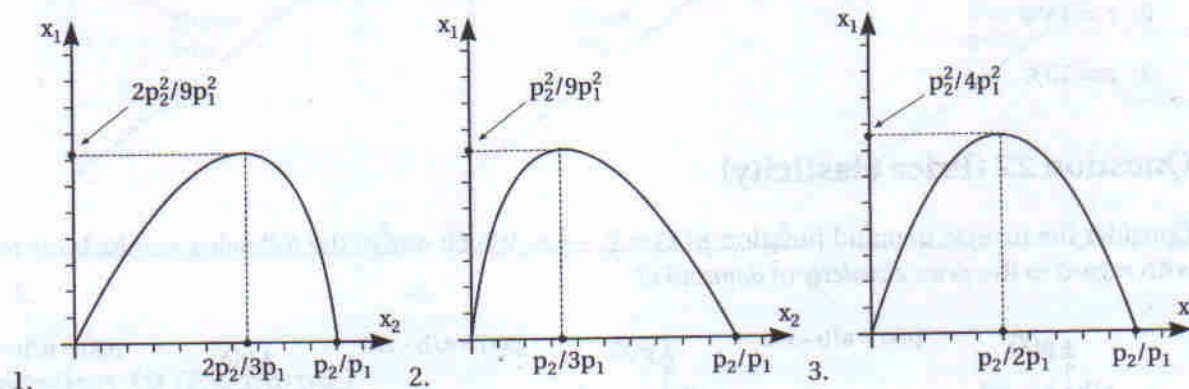
Question 24 (Income expansion path)

A consumer's utility function is $u(x_1, x_2) = 3x_1x_2 + x_2^3$. Which is the corresponding income expansion path? (Hint: Solve the Marshall demand-FOC for x_1)

1. $x_1(x_2) = \frac{p_2}{p_1}x_2 - x_2^2$
2. $x_1(x_2) = \frac{p_1}{p_2}x_2^2 - x_2$
3. $x_1(x_2) = x_2^2 - \frac{p_2}{p_1}x_2$

Question 25 (Income expansion path)

Consider the previous question. Which of the following three graphs represents the correct income expansion path? (Hint: Find the maximum of function $x_1(x_2)$)



Question 26 (Inferiority)

Which statement is correct with regard to the graphics in question 25? (Note: In case you have not solved question 25, take an arbitrary one of the three graphics as reference). Starting from zero income $m = 0 \dots$

1. ... good 1 is inferior and becomes normal for some $m > 0$.
2. ... good 1 is normal and becomes inferior for some $m > 0$.
3. ... good 2 is inferior for all $m > 0$.

Question 27 (Homothetic preferences)

Preferences are called *homothetic* if...

1. ... the corresponding income expansion path is concave.
2. ... the corresponding income expansion path is linear.
3. ... the corresponding income expansion path is convex.

Question 28 (Profit maximization)

A producer's production function is $f(x_1, x_2) = \sqrt{x_1} \cdot \sqrt{x_2}$. The factor prices are $w_1 = 20$ and $w_2 = 40$. Let the optimal factor demand of factor 1 be $x_1^* = 50$ what is the profit maximizing output? (**Remember:** *partially deriving f for x_1 makes the second factor in f behave as a multiplicative constant!*)

1. $f(x_1^*, x_2^*) = \sqrt{2}$
2. $f(x_1^*, x_2^*) = 25$
3. $f(x_1^*, x_2^*) = 25\sqrt{2}$

Question 29 (Cournot equilibrium I)

Let the market demand function be $p(Y) = 10 - 2Y$ where $Y = y_1 + y_2$ is the total quantity produced by $n = 2$ suppliers in a Cournot duopol. If cost functions of the two are $c_1(y_1) = 8 + y_1$ and $c_2(y_2) = 2 \cdot c_1(y_2)$, then the *reaction functions* are:

1. $y_1 = \frac{9}{4} - \frac{1}{2}y_2$ (supplier 1) and $y_2 = 2 - \frac{1}{2}y_1$ (supplier 2)
2. $y_1 = \frac{9}{4} - \frac{1}{4}y_2$ (supplier 1) and $y_2 = 4 - y_1$ (supplier 2)
3. $y_1 = 2 - \frac{1}{4}y_2$ (supplier 1) and $y_2 = 3 - y_1$ (supplier 2)

Question 30 (Cournot equilibrium II)

Given the situation of question 29, what is the *equilibrium quantity and price*?

1. $Y^* = \frac{13}{3}, p^* = \frac{4}{3}$
2. $Y^* = \frac{17}{6}, p^* = \frac{13}{3}$
3. $Y^* = \frac{17}{3}, p^* = \frac{23}{4}$