



Economics I: Interm. Microeconomics (5024)

Summerterm 2009

Tue, Jul 28, 2009, 8.00-10.00 a.m., HS1

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Name: _____

Matr.-No.: _____

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

1. There are 30 questions to be answered. 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.
5. Geben Sie *alle* Unterlagen wieder ab, also auch Aufgaben- und Schmierzettel!

VIEL GLÜCK!

Teil 1: Household Choice

1. Indifference curves cannot cross because then there exist three bundles which violate...

- (a) ... transitivity and monotonicity
- (b) ... transitivity and continuity
- (c) ... transitivity and reflexivity

2. A consumer has got an income $m = 10$ and the market prices of the two goods are $p_1 = 3$ und $p_2 = 4$. Income and p_1 increase by 10%, respectively. What is the new budget line?

- (a) $x_2(x_1) = 2.75 - 0.825x_1$
- (b) $x_2(x_1) = 2.75 - 0.625x_1$
- (c) $x_2(x_1) = 2.75 - 0.425x_1$

3. How does the budget-line in Question 2 change geometrically if we have x_2 on the y -axis und x_1 on the x -axis?

- (a) Parallel-shift downwards left and a clockwise turn
- (b) Parallel-shift upwards right and a anti-clockwise turn
- (c) Parallel-shift upwards right and a clockwise turn

4. Let the utility-function be $u(x_1, x_2) = x_1^{\frac{2}{3}} x_2^{\frac{1}{3}}$. What is the corresponding indifference curve?

- (a) $x_2(x_1) = \frac{\bar{u}^2}{x_1^3}$
- (b) $x_2(x_1) = \frac{\bar{u}^3}{x_1^2}$
- (c) $x_2(x_1) = \frac{\bar{u}^3}{x_2^3}$

5. What is the Marginal Rate of Substitution (*MRS*) given the utility function in Question 4?

- (a) $MRS = 3 \frac{x_2}{x_1}$
- (b) $MRS = 2 \frac{x_2}{x_1}$
- (c) $MRS = 1 \frac{x_2}{x_1}$

6. The *MRS* describes...

- (a) ... the slope of the indifference curve
- (b) ... the slope of the budget line
- (c) ... the exchange-ratio of both goods at increasing utility level

7. In a world of sausage and beer you consider joining a beerdrinker club. Your income is $m = 10$ and prices of the two goods are $p_1 = 3$ (sausage) and $p_2 = 4$ (beer). The membership costs €1.00 but as a member you can consume beer 25% cheaper. Assume you decided to become a member and you like to consume $x_1 = 1$ sausage, how many beers are affordable now?

- (a) 1
- (b) 2
- (c) 3

8. By becoming a member in Question 7 the consumption set is...

- (a) ... enlarged
- (b) ... shrunk
- (c) ... unchanged

9. Let a consumers utility function be $u(x_1, x_2) = 3x_1 + x_2$ and her budget "line" $x_1^2 + 2x_2 = 16$. Then the Marshall demand will be

- (a) $x^* = (3, 3.5)$
- (b) $x^* = (3.3, 3)$
- (c) $x^* = (3.5, 3.5)$

10. The goods in Question 9 are...

- (a) ... complements
- (b) ... substitutes
- (c) ... neutrals

11. Given concave preferences the "tangency-criterion" is ...

- (a) ... necessary but not sufficient ...
- (b) ... necessary and sufficient ...
- (c) ... not sufficient ...

... for a utility maximum.

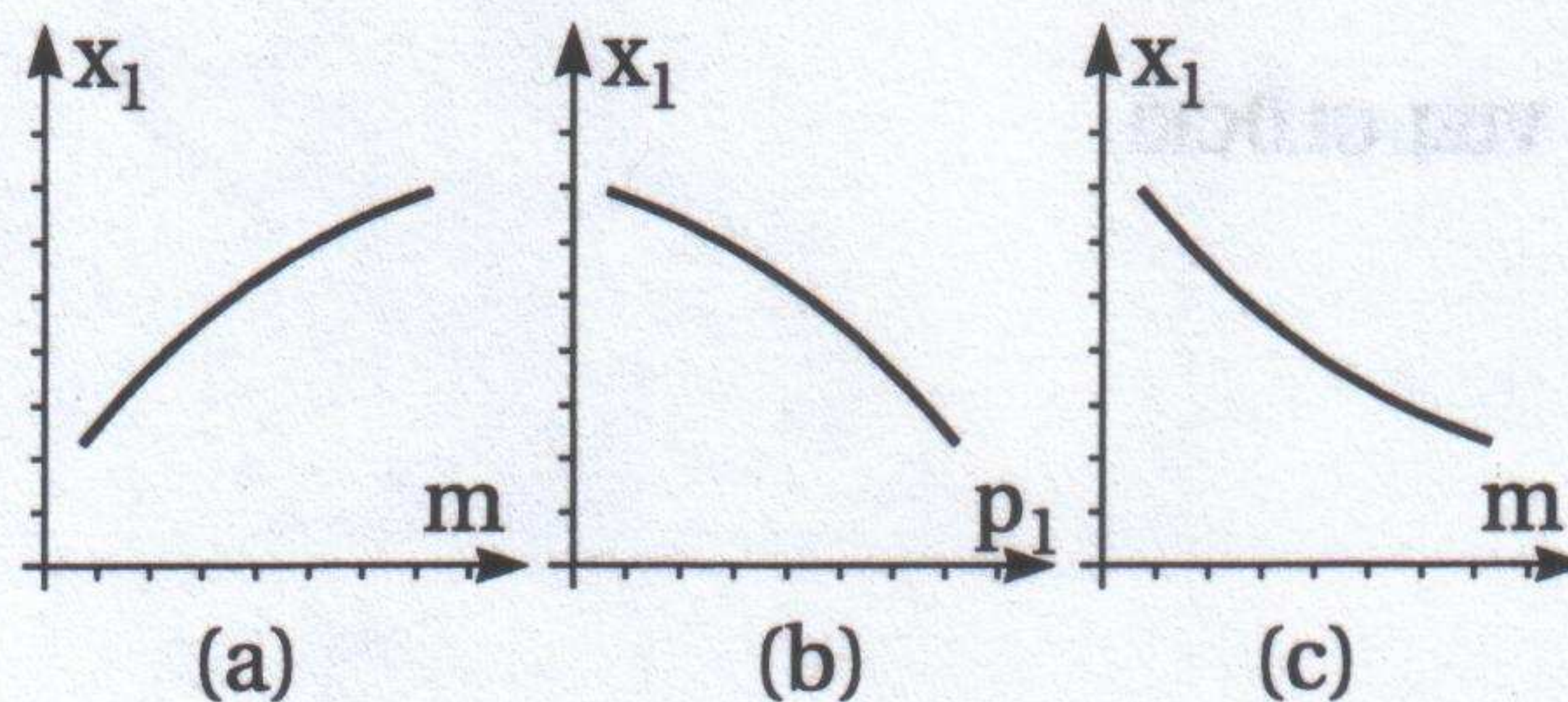
12. Sausage costs 1.44€ and beer 0.80€. How much costs sausage measured in beer units? (and not in € units).

- (a) 1.62 beer
- (b) 0.56 beer
- (c) 1.80 beer

13. Fred spends all his money on coke (x_1) and fries (x_2). His utility function is $u(x_1, x_2) = \min\{4x_1, 2x_1 + x_2\}$. He consumes $x_1 = 15$ units of coke and $x_2 = 10$ units of fries. Coke costs $p_1 = 10$. What is Fred's income m ? (**Hint:** Simplify $u(x_1, x_2)$ at the relevant point)

- (a) 100
- (b) 200
- (c) 300

14. Consider an inferior good. How would the inverse Engel curve look like?



Teil 2: Revealed Preferences

15. At prices $p = (4, 6)$ a consumer chooses bundle $x = (6, 6)$ and at prices $q = (6, 3)$ bundle $y = (10, 0)$. These choices ...
- (a) ... satisfy WARP and SARP
 - (b) ... violate WARP and SARP
 - (c) ... violate WARP and satisfy SARP

Teil 3: Slutsky-decomposition

16. Assume that a consumer has well-behaved preferences. Her income is $m = 10$ and prices are $p_1 = 1$, $p_2 = 2$. The consumer's Marshall-demand for good 1 is at these prices $x_1^* = \frac{20}{3}$. Now assume a 100% price increase of p_1 , then her Marshall-demand becomes equally large for both goods, i.e. $x_1^* = x_2^* = \frac{5}{2}$. What is the (compensated) Slutsky-demand?
- (a) $\frac{26}{5}$
 - (b) $\frac{25}{6}$
 - (c) $\frac{24}{5}$

Teil 4: Market and Endowment Economies

17. Given a market demand $x(p) = (p+3)^{-2}$ the price elasticity of demand is ...
- (a) $\varepsilon = -2 \frac{p}{p+3}$
 - (b) $\varepsilon = -2 \frac{p^2}{p+3}$
 - (c) $\varepsilon = -2 \frac{p}{(p+3)^2}$
18. Let the market demand be $x(p) = 21 - 3p$ and the current market price is $p = 5$ Euro. How much changes the consumer surplus if the market price decreases by two Euro?
- (a) +18
 - (b) +19
 - (c) +20
19. The total demand for wine is $1.000.000 - 60.000p$ when p is the price per bottle. The total number of supplied bottles is $40.000p$. The market equilibrium quantity is ...
- (a) 200.000
 - (b) 300.000
 - (c) 400.000
20. Consider the previous Question 19. The government introduces a wine-tax, i.e. 5€ for each bottle produced. The new equilibrium quantity is ...
- (a) 280.000

(b) 270.000

(c) 260.000

21. Consider the previous Question 20. How much of the tax is paid by the consumer and how much by the producer?
- (a) Consumer: 2€, producer: 3€
 - (b) Consumer: 3€, producer: 2€
 - (c) Consumer: 4€, producer: 1€
22. The total loss of welfare due to the introduction of the tax in Question 20 is ...
- (a) 250.000
 - (b) 300.000
 - (c) 350.000
23. In a 2-person-endowment economy the "contract curve" is ...
- (a) ... always linear
 - (b) ... includes the "core" of that economy
 - (c) ... depends on the initial allocation of goods

Teil 5: Production and profit maximization

24. A producer of beverages has developed a new lifestyle drink. Production requires *exactly* 3 parts of water (x_1) and 1 part of artificial flavors (x_2). The production function is ...
- (a) $y = \min \left\{ \frac{1}{3}x_1, x_2 \right\}$
 - (b) $y = \min \{x_1, 3x_2\}$
 - (c) $y = \min \left\{ x_1, \frac{1}{3}x_2 \right\}$
25. The marginal rate of technical substitution (MRTS) of the production function in Question 24 ...
- (a) ... is 1 everywhere
 - (b) ... is -1 everywhere
 - (c) ... cannot be determined everywhere
26. Let the demand be $x(p) = 120 - p$. A profit-maximizing monopoly has the cost function $c(y) = y^2$. It will set the price to ...
- (a) 90
 - (b) 100
 - (c) 110
27. The government tries to regulate the monopoly in the previous question 26. In order to maximize welfare the monopoly must be regulated to the selling price ...
- (a) 70
 - (b) 80
 - (c) 90

28. Assume that a competitive firm produces at costs $c(y) = 2y^2$. The total market equilibrium demand is $X = 90$ and the inverse market demand is $p(X) = 120 - X$. What is the range of feasible quantities to be sold by this firm in order to stay in the market (in the long-run)?

- (a) $0 < y \leq 15$
- (b) $0 < y \leq 30$
- (c) $0 < y \leq 45$

Teil 6: Oligopoly and Game Theory

29. Let the (inverse) market demand be $p(Y) = 6 - Y$ where $Y = y_1 + y_2$ is the total supply of $n = 2$ suppliers in a Stackelberg-duopoly (1 is leader, 2 is follower). The costs of both suppliers are zero. The follower's reaction function is

- (a) $y_F^* = f(\bar{y}_L) = 6 - \frac{1}{2}\bar{y}_L$
- (b) $y_F^* = f(\bar{y}_L) = 6 - \frac{1}{3}\bar{y}_L$
- (c) $y_F^* = f(\bar{y}_L) = 6 - \frac{1}{4}\bar{y}_L$

30. Consider the duopoly of the previous Question 29. How much will be supplied to the market?

- (a) $Y = 3.5$
- (b) $Y = 4$
- (c) $Y = 4.5$