Microeconomics An Intuitive Approach with Calculus 2nd edition Thomas Nechyba Test Bank

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Chapter 02 A Consumer apos s Economic Circumstances

TRUEFALSE

1. If all consumers are price-takers facing the same prices, then their budget lines will all have the same slope.

(A) True

(B) False

Answer : (A)

2. If all consumers are price-takers facing the same prices, then all choice sets are the same.

(A) True

(B) False

Answer : (B)

3. Regardless of which consumption bundle in her choice set a consumer chooses, she will spend all of her available income.

(A) True

(B) False

Answer : (B)

4. In a graph of choice sets, a price change causes the slope of budget lines to change.

(A) True

(B) False

Answer : (A)

5. If a consumer's fixed income increases, his opportunity cost also increases.

(A) True

(B) False

Answer : (B)

6. When the good on the vertical axis is a composite good, the slope of the budget line is equal to minus the price of the good on the horizontal axis.

(A) True

(B) False

Answer : (A)

7. When the good on the horizontal axis is a composite good, the slope of the budget constraint is minus the price of the good on the vertical axis.

(A) True

(B) False

Answer : (B)

8. While the endowment bundle must lie on the original budget line, it need not lie on the budget line when prices change.

(A) True

(B) False

Answer : (B)

9. For choice sets emerging from "exogenous" income, the budget line will shift parallel whenever both prices change by the same percentage.

(A) True

(B) False

Answer : (B)

10. For choice sets generated from endowment bundles, the budget line will shift parallel if both prices change by the same proportion.

(A) True

(B) False

Answer : (B)

11. The budget line on a graph represents choices which exhaust all resources.

(A) True

(B) False

Answer : (A)

12. In a graph of choice sets, a price change affects the ratio but does not affect the budget line.

(A) True

(B) False

Answer : (B)

MULTICHOICE

13. The following changes in a consumer's economic circumstances result in a steeper budget line with the vertical intercept unchanged. (Denote the good on the horizontal as good 1 and the good on the vertical as good 2.)

(A) A k percent decrease in the price of good 2 combined with a k percent decrease in income

(B) A k percent increase in the price of good 2 combined with a k percent decrease in income

(C) A k percent decrease in the price of good 2 combined with a k percent increase in income

(D) A k percent increase in the price of good 2 combined with a k percent increase in income.

(E) None of the above

Answer : (A)

14. Suppose inflation comes in the form of an across-the board increase in all prices by some percentage k. For a consumer with exogenous income operating in a 2-good world, this will cause the budget constraint to

(A) rotate inward

(B) rotate outward

(C) shift out in a parallel way

(D) shift inward in a parallel way

(E) none of the above

Answer : (D)

15. Suppose you are given a coupon for pizza. This coupon lowers the price for each additional pizza you buy by 5% for each addition pizza you buy. What happens to your budget constraint, with pizza on the horizontal axis and a composite good on the vertical?

(A) The vertical intercept remains the same but the slope becomes steeper as more pizzas are bought.

(B) The vertical intercept increases and the slope becomes steeper as more pizzas are bought.

(C) The vertical intercept remains the same but the slope becomes shallower as more pizzas are bought.

(D) The vertical intercept increases but the slope becomes shallower as more pizzas are bought.

(E) None of the above.

Answer : (C)

16. Suppose the government wants to discourage excessive consumption of alcohol. It therefore imposes a per-unit tax on alcohol that increases as more alcohol is bought by a consumer at a store. What happens to a consumer's budget at a liquor store (with liters of alcohol on the horizontal axis and a composite good on the vertical) --- assuming the consumer takes only one trip to the store.

(A) The vertical intercept decreases and the slope becomes shallower as more alcohol is bought.

(B) The vertical intercept remains constant but the slope becomes shallower as more alcohol is bought.

(C) The vertical intercept decreases and the slope becomes steeper as more alcohol is bought.

(D) The vertical intercept remains constant but the slope becomes steeper as more alcohol is bought.

(E) None of the above.

Answer : (D)

ESSAY

17. Consider a consumer with a choice set that emerges from an exogenous income I. Suppose that, as a result of changes in a consumer's economic circumstances, the budget line rotates outward, with the vertical intercept remaining unchanged but the horizontal intercept shifting to the right. How could this have happened if the price of the good on the horizontal axis did not change?

Graders Info :

If the price of the good on the vertical axis increases by the same proportion as income does. (The increase in income along causes a parallel shift outward, and the increase in the price of good 2 causes the slope to become shallower. If the two increase by the same percentage, the amount of good 2 that is affordable remains unchanged while the amount of good 1 that is affordable increases.)

18. Consider a consumer with a choice set that emerges from an exogenous income I. Suppose that, as a result of changes in a consumer's economic circumstances, the budget line rotates outward, with the vertical intercept remaining unchanged but the horizontal intercept shifting to the right. Demonstrate, using the budget line equation, how this could have happened if the price of the good on the horizontal axis did not change?

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Graders Info :

The budget equation is $x_2=I/p_2 - (p_1/p_2)x_{12}$, with the first term representing the intercept and the term in parenthesis representing the slope. The rotation of the budget that is described implies the intercept remains constant and the slope falls in absolute value. If p_1 does not change, this can happen only if I and p_2 change by the same factor k --- which then cancels in the first term (leaving the intercept unchanged) and causes the second term to fall in absolute value.

19. Suppose that the price of a TV is $200 and he price of an MP3 player is $50. What is the opportunity cost of a TV (in terms of MP3 players), and what is the opportunity cost of an MP3 player (in terms of TVs)?

Graders Info :

The opportunity cost of a TV is 4 MP3 players, and the opportunity cost of an MP3 player is one fourth of a TV.

20. Derive the budget line equation for the case where good 2 is a composite good. What is the vertical intercept and what is the slope?

Graders Info :

Since $p_2 = 1$, the usual budget line equation $x_2=I/p_2 - (p_1/p_2)x_1$ becomes $x_2=I - p_1x_1$, an equation with a vertical intercept of I and a slope of $- p_1$.

21. Derive the budget line equation for the case where good 1 is a composite good. What is the vertical intercept and what is the slope?

Graders Info :

Since $p_1 = 1$, the usual budget line equation $x_2=I/p_2 - (p_1/p_2)x_1$ becomes $x_2=I/p_2 - (1/p_2)x_1$, an equation with a vertical intercept of I/p_2 and a slope of $- (1/p_2)$.

22. A consumer has $1,000 a week to spend on renting square feet of housing (at a price of $5 per square foot) and eating out (at a price of $20 per meal). With square feet of housing on the horizontal and meals on the vertical axis, what is the vertical intercept and what is the slope of this consumer's budget constraint?

Graders Info :

The most meals that can be consumed with $1,000 is 50 per week --- implying a vertical intercept of 50. The most square feet that can be rented with $1,000 per week is 200, implying a horizontal intercept of 200. The slope is then -50/200=-1/4.

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23. A consumer has $1,000 a week to spend on renting square feet of housing x_1 (at a price of $5 per square foot) and eating out meals x_2 (at a price of $20 per meal). Derive the budget line equation and find the opportunity cost of housing in terms of meals in your equation.

Graders Info :

The budget equation $x_2=I/p_2 - (p_1/p_2)x_1$ becomes $x_2=1000/20 - (5/20)x_1$ or $x_2=50 - (1/4)x_1$. The slope of the budget line is equal to the opportunity cost of housing in terms of meals --- and this slope is -1/4 in the equation.

24. Suppose the government levies a per-unit tax on TVs, and this tax increases the price of TVs by $10.

a. On a graph with TVs on the horizontal axis and "$'s of other consumption" on the vertical, illustrate how the budget constraint for a consumer with exogenous income changes as a result of the tax.

b. Suppose you know the bundle on the after-tax budget that is chosen by the consumer. Illustrate on your graph how much in tax revenue the government is raising from this consumer.

c. If the government replaced the tax on TVs with a lump sum tax that does not alter any prices but raises the same amount of revenue from the consumer, how would this consumer's budget constraint change?

Graders Info :

a. The graph should have two budget constraints with the same vertical intercept but different slopes --- with the steeper budget line representing the after tax case.

b. The tax revenue the government collects is the vertical distance between the after-tax bundle that is bought and the before-tax budget line.

c. The consumer's after-tax budget constraint would rotate through the previous after-tax bundle --- becoming shallower as the price distortion from the TV tax is lifted and ending up parallel to the before-tax budget.

25. Suppose the government levies a per-unit tax on TVs, and this tax increases the price of TVs by $100. Model TVs as x_1 and all other goods as a composite good x_2.

a. For a consumer with income I, write down an equation for the before-tax budget line.

b. Write down the after-tax budget line equation.

c. Suppose you know the bundle on the after-tax budget that is chosen by the consumer contains 3 TVs. How much in tax revenue is the government raising from this consumer?

d. If the government replaced the tax on TVs with a lump sum tax that does not alter any prices but raises the same amount of revenue from the consumer, how would this change the consumer's

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budget line equation?

Graders Info :

a. $x_2=I - p_1x_1$ or $I= p_1x_1+ x_2$

b. $x_2=I - (p_1+100)x_1$ or $I= (p_1+100)x_1+ x_2$

c. $300

d. $x_2=(I - 300)/p_2 - (p_1/p_2)x_1$ or $I= p_1x_1+ x_2 + 300$

26. Suppose a business offers a 10% discount on the good x_1 that it sells.

a. Illustrate a consumer's before and after-discount budget constraint by modeling x_2 as a composite good.

b. Suppose you observe only the after-discount consumption decision of the consumer. Can you tell from this information how much revenue the firm is giving up (from this consumer) by offering the discount? If so, illustrate this in your graph.

c. Suppose that, instead of the firm offering the 10% discount, the government subsidized consumption of x_1 sufficiently to reduce p_1 by 10%. Suppose again that you only observe the after-subsidy decision of the consumer. Can you tell how much of a subsidy payment is made to this consumer by the government? If so, illustrate it in your graph.

d. Why are your answers to (b) and (c) different?

Graders Info :

a. The graph should contain two budget lines with the same vertical intercept but different slopes --- with the shallower constraint representing the after-discount budget constraint.

b. No, you cannot. The reason for this is that we do not know what decision the consumer would have made in the absence of the discount --- and so we can't tell whether (or how much) revenue was lost.

c. Yes, you can. The subsidy payment by the government is the vertical difference between the before and after-subsidy constraints measured at the after-subsidy consumption bundle.

d. If you are a firm and you want to assess the impact on revenues of a discount policy, you need to know what consumers do *both* before and after the discount --- because you need to calculate the difference in revenues. If you are a government subsidizing a good, you don't have to know what consumers do before the subsidy in order to calculate how much the subsidy will cost --- because all that matters is how much consumers will buy under the subsidy.

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