

ECON 310
Homework Quiz #2

Alice consumes goods X and Y. Alice's utility function is given by $U=X^2*Y^3$. From this equation, we know that $MU_x=2XY^3$ and $MU_y=3X^2Y^2$.

1. Suppose Alice has an income of \$200, the price of X, $P_x = \$4$, and the price of Y, $P_y = \$12$. What is the optimal bundle of X and Y?

- a) $X = 7.14, Y = 14.28$
- b) $X = 20, Y = 10$
- c) $X = 25, Y = 8.33$
- d) $X = 10, Y = 10$

For the next 3 problems, suppose Alice's income falls to \$100, but prices stay the same ($P_x = \$4, P_y = \12)

2. What is the equation for Alice's new budget line?

- a) $Y = -(1/3)X + 50/3$
- b) $Y = -(1/3)X + 25/3$
- c) $Y = -(2/3)X + 50/3$
- d) $Y = -(2/3)X + 25/3$

3. Is X a normal or inferior good?

- a) Normal, when the price of X went up, quantity of X went down
- b) Inferior, when the price of X went up, quantity of X went down
- c) Normal, when income went down, quantity of X went down
- d) Inferior, when income went down, quantity of X went up

4. When her income changes from \$200 to \$100, what is Alice's income elasticity of demand in this region?

- a) 1
- b) 1/2
- c) -1
- d) -1/2

For the next two problems, suppose the price of good X increases from \$4 to \$8, but her income stays at the original level of \$200.

5. What is the new optimal bundle of X and Y?

- a) $X = 25, Y = 12.5$
- b) $X = 10, Y = 10$
- c) $X = 20, Y = 10$
- d) $X = 12.5, Y = 25$

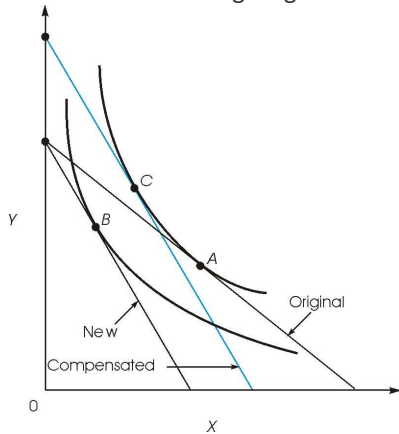
6. What is Alice's price elasticity of demand for good X? Is Alice's demand elastic or inelastic?

- a) 1.5, elastic
- b) 1.5, inelastic
- c) 1/2, elastic
- d) 1/2, inelastic

7. Can a good have both a downward sloping Engel curve and a downward sloping demand curve? Why or why not?

- a) Yes, an inferior good is non-giffen if the substitution effect is larger than the income effect.
- b) Yes, a normal good can never be giffen.
- c) Yes, an inferior good is non-giffen if the substitution effect is smaller than the income effect.
- c) No, an inferior good is always giffen.

Refer to the following diagram for the next 3 problems



8. When the price change in the previous question occurs, the actual consumption of good X changes from ___ to ___.

- A. A to B
- B. A to C
- C. B to C
- D. C to A
- E. B to A

9. The move from C to B with respect to the quantity of good X refers to the

- A. Substitution Effect
- B. Income Effect
- C. Can't tell

10. In this case, X is a _____ good.

- A. Giffen
- B. Inferior
- C. Normal
- D. Leontief