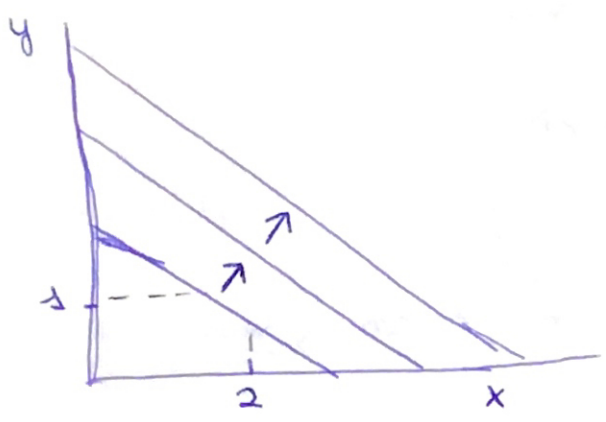


Consumer theory.

1.

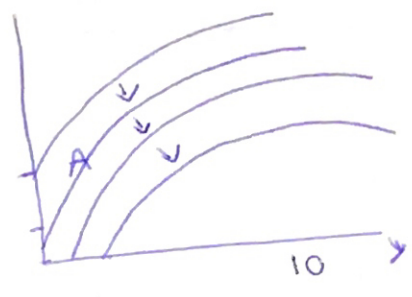
(b) 1000 milligrams of tylenol (x)
500 milligrams of Aspirin (y)



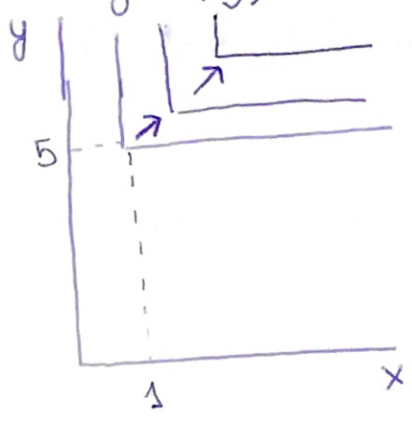
$$2x + y = k$$

$$y = 1 \quad y = 2x + k$$

a) My welfare is larger the larger my income
~~+ line to d~~



(c) vermouth (x)
gin (y)



(d) hamburgers (x)
beer (y)



(e) I like to drink a beer, but I am allergic to meat
similar to (b)

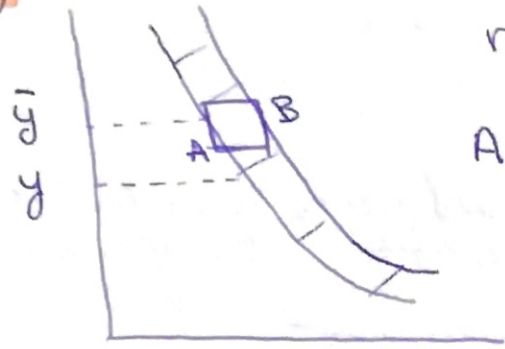


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(2)

(a)



monotonicity \rightarrow you can't have a thick indifference curve.

$A \sim B$

let's assume that the indifference curve is thick

$$\begin{matrix} \bar{x} > x \\ \bar{y} > y \end{matrix} \Rightarrow B \succ A$$

Completeness

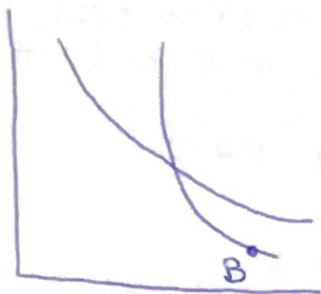
(b)



$$\begin{matrix} A \succ B \\ B \succ A' \end{matrix}$$

it violates the axiom of ~~trans~~

(c)

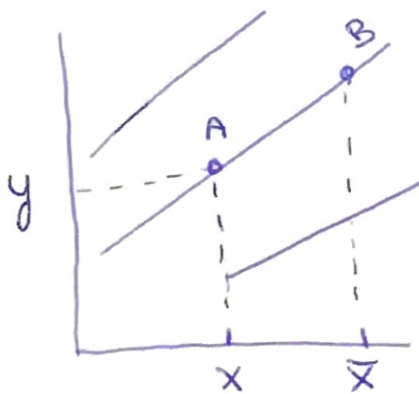


transitivity

it violates the axiom of transitivity

$$\begin{matrix} A \sim C \\ C \sim B \Rightarrow A \sim B \\ A \succ B \end{matrix}$$

(d)



Monotonicity



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3.

(a)

$$\frac{2.2(5'5 - 50)}{50 \times 2.2} \times 100 = 10\%$$

$$F_1 = 50$$

$$F_2 = 55$$

$$\frac{9}{5} C_1 + 32 = F_1$$

$$\frac{C_2 - C_1}{C_1} = \frac{F_2 - F_1}{F_1 - F_2}$$

$$\frac{F_2 - F_1}{F_1}$$

$$\frac{F_2 - F_1}{F_1 - F_2}$$

No the same

$$C_1 = \frac{5}{9} (F_1 - 32)$$

$$C_1 = \frac{5}{9} (F - 32)$$

Add the third

$$F_3 = 65$$

$$F_3 - F_2 = 10 = 2 \times 5 = 2 \times (F_2 - F_1)$$

$$C_3 - C_2 = 2(C_2 - a)$$

(c) No you can't measure how much more that is.

4. next week (utility)

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7. Chapter 2

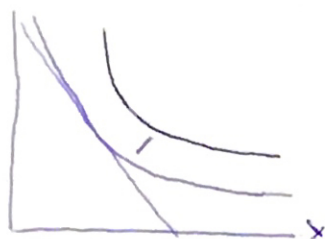
Exercise 4 and 7 together

4. Chapter 2

$$u(x, y) = \sqrt{xy} = k$$

$$y = \frac{k^2}{x}$$

- ① Utility
- ② Indifference curve
- ③ MRS



$$MRS = \frac{\partial u / \partial x}{\partial u / \partial y} = \frac{\sqrt{y} \cdot \frac{1}{2} \cdot \frac{1}{\sqrt{x}}}{\sqrt{x} \cdot \frac{1}{2} \cdot \frac{1}{\sqrt{y}}}$$

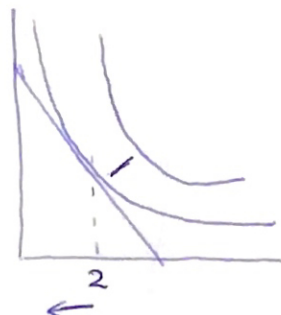
$$MRS(x, y) = \frac{y}{x}$$

$$MRS(2, 2) = 1$$

$$u(2, 2) = u(2 - \varepsilon, 2 + \varepsilon)$$

$$u(2 - \varepsilon, 2 + \varepsilon)$$

u



$$u(2, 2) = 2$$

$$u(1, 3.5) = \sqrt{3.5} < \sqrt{4}$$

Si tiene (2, 2) ¿lo cambiaría por una unidad infinitesimal de x y por 1,5 de y?



Cartagena99

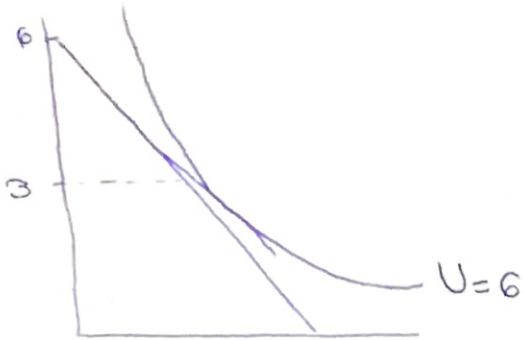
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8.

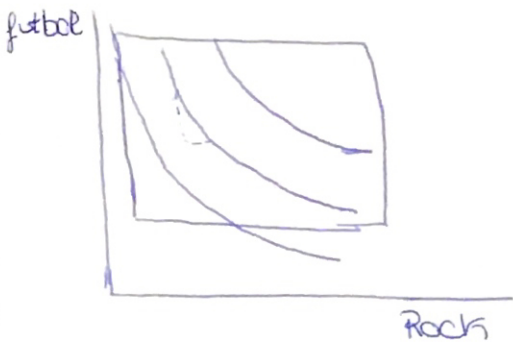
(a) $u(x, y) = \sqrt{xy}$

$u(3, 3) = \sqrt{xy}$ $RMS = \frac{y}{x} = 1$

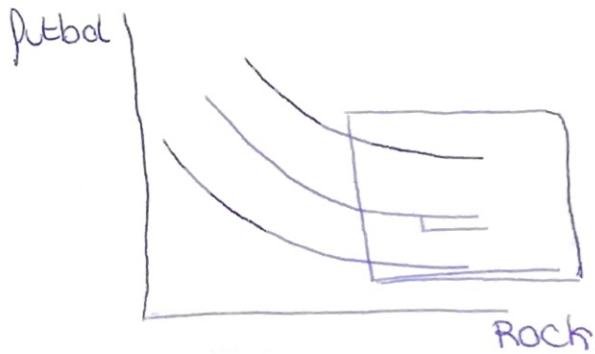


5.

a) Indifference curve María



JUAN



6.

$u(x, y) = x + 2\sqrt{y}$

(a) $MRS = \frac{1}{2 \cdot \frac{1}{2} \cdot \frac{1}{y}} = \sqrt{y}$

$MRS = u(x, y) = \sqrt{y}$

→ MRS isn't a function of (x).

b) increase food because it doesn't affect clothes.

c) $MRS = u(x, y) = 4 \rightarrow \sqrt{y} = 4$ any value of x

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The consumer problem budget set ; interior and corner solutions

9)

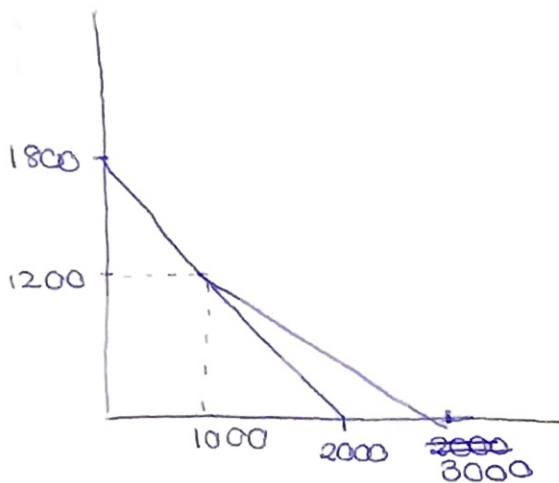
Gas 0'05 euros / m³
 electricity 0'06 euros / kilowatt per hour I = 120 €

Gas $P_G = 0'05 \text{ € / kWh}$ φ
 electricity $P_E = 0'06 \text{ € / kWh}$ $\varphi E \leq 1000 \text{ kWh}$
 $P_E = 0'03 \text{ € / kWh}$ $\varphi E > 1000 \text{ kWh}$

$$0.05 G + 0.06 E = 120 \quad E \leq 1000$$

$$0.05 G + 0.06 \times 1000 + 0.03 (E - 1000) = 120$$

$$0.03 E + 0.05 G = 120 + (0.03 \cdot 1000) - (0.06 \cdot 1000)$$



10)

$T + P_x(x_2 - x_1) + P^2_x(x_1 - x_2)$
 Budget line

(a) $T + P_y y = I$ $\varphi x \leq x_1$
 $T + P_x(x - x_1) + P_y y = I$ $x_1 < x \leq x_2$
 $T + P_x(x_2 - x_1)$ $x \geq x_2$

T $x \leq x_1$
 $P_x \rightarrow$ per unit $x \in (x_1, x_2)$
 $P^*_x \rightarrow$ per unit $x > x_2$

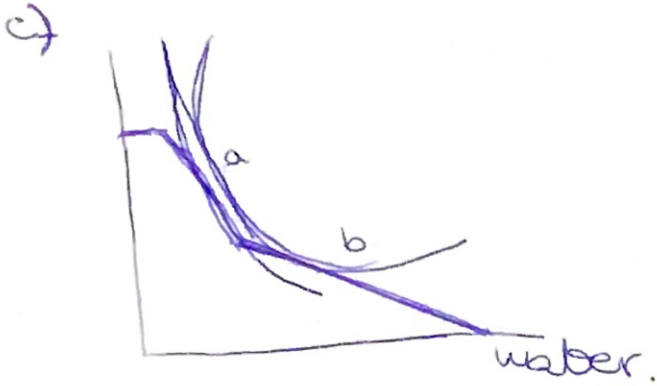
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b) more is better
monot.

- Not possible, the consumer will consume $x \rightarrow$ more is better



11)

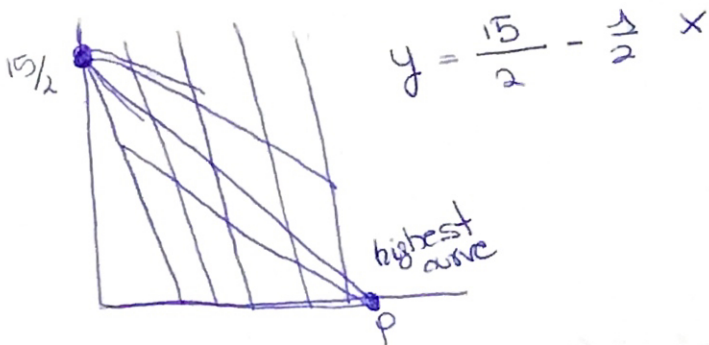
$$u(x, y) = 2x + y$$

income = 15 euros

$P_x = 1, P_y = 2, (P'_x, P'_y) = (1, 2) (3, 1) (2, 1)$

$$P_x x + P_y y = 15$$

$$MRS = 2$$



12)

food (x)
clothes (y)

$$P_x x + P_y y = I$$

$$MRS = 2\sqrt{y} = \frac{P_x}{P_y}$$

$$x = \frac{I}{P_x} \quad y = \frac{I}{P_y}$$

$$1 + \sqrt{4} = 3$$



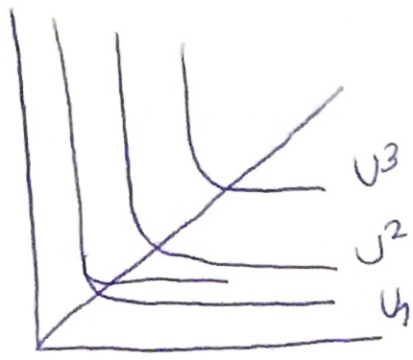
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$$x=0 \quad y=3$$

14)
(a)



Indifference curve

$$I = p_x x + p_y y = 200 = 4x + 2x = 6x$$

$$x = y = 200/6 = 33\frac{1}{3}$$

(b)

$t = 1$ euro

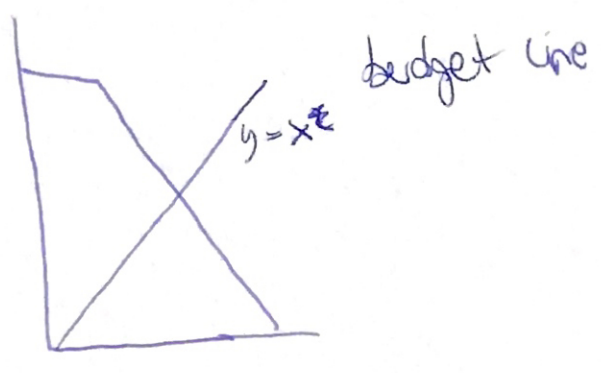
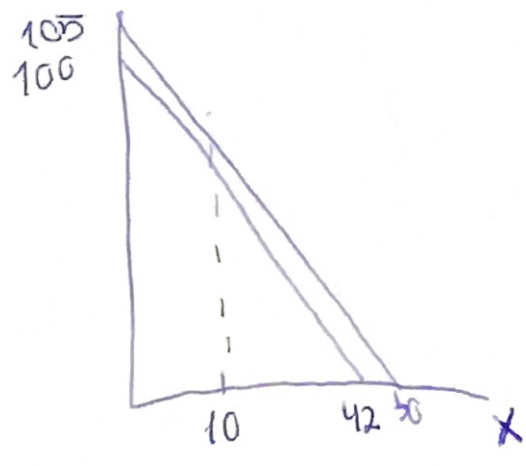
$p_x = 4 \rightarrow$ per unit $x < 10$

$p_x' = 5 \rightarrow$ per unit $x > 10$

Si $x < 10 \rightarrow 200 = p_x x + p_y y$
 Si $x > 10 \rightarrow 200 = p_x \cdot 10 + (p_x + t)(x - 10) + p_y y$

Si $x < 10 \quad 200 = 4x + 2y$
 Si $x > 10 \quad 200 = (4 \cdot 10) + 5(x - 10) + 2y$

Si $x = 0 \quad y = 105 \quad y = 0 \quad x = 42$



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