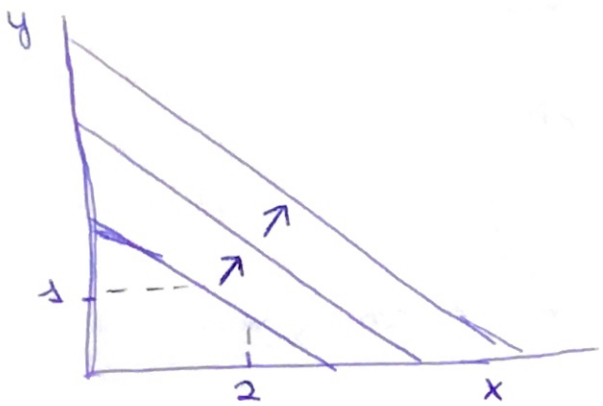
Consumer theory.

15/02/21

1.

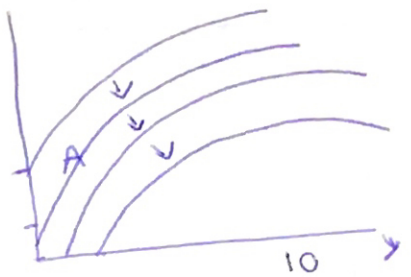
(b) 1000 milligrams of tylenol (x)
500 milligrams of Aspirin (y)



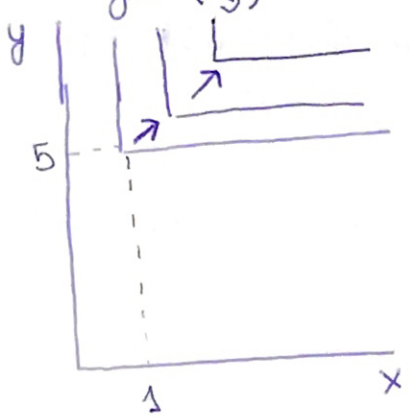
$2x + y = k$

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

(a) ~~I like to d~~ My welfare is larger the larger my income



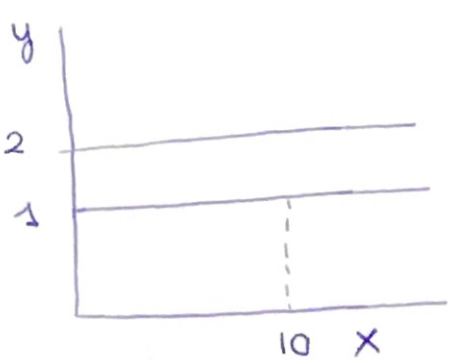
(c) vermouth (x)
gin (y)



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

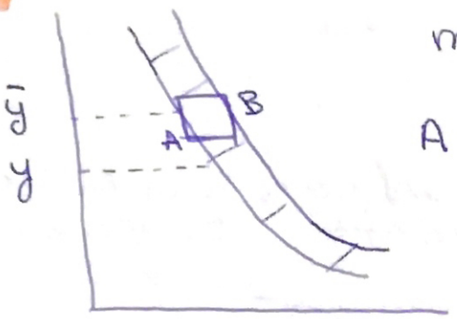
Simmilar to (b)

(d) hamburgers (x)
beer (y)



(2)

(a)



monotonocity → you can't have a ~~thick~~ indifference curve.

$A \sim B$

let's asume that the indference curve is ~~thick~~

$\bar{x} > x$

$\bar{y} > y \Rightarrow B > A$

Compleness

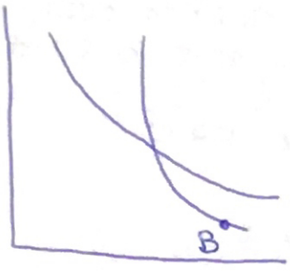
It violets the axiom of ~~rea~~

(b)

$A > B$

$B > B$

(c)



Transitivity

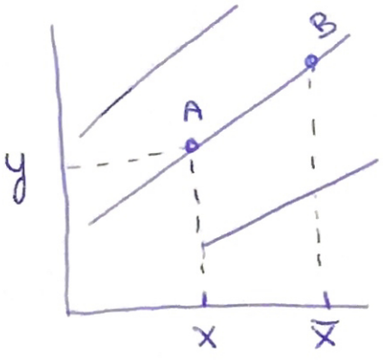
It violets the axiom of transitivity

$A \sim C$

$C \sim B \Rightarrow A \sim B$

$A > B$

(d)



Monotonocity

$B > A$

3.

(a)

$$\frac{22(5'5 - 50)}{50 \times 22} \times 100 = 10\%$$

$F_1 = 50$

$F_2 = 55$

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

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

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

No the same

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

Add the third

$F_3 - 05$

$$C_3 = \frac{5}{9}(F - 32)$$

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

$C_3 - C_2 = 2(C_2 - 9)$

(c) No you cannot mesuare how much more that is.

4. next sweek (utility)

Microeconomía

22/02/21

7. Chapter 2

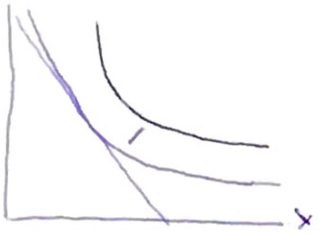
Exercise 4 and 7 together

4. Chapter 3

① Utility
② Indifference curve
③ MRS

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

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



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

$MRS(x, y) = y/x$

$MRS(2, 2) = 1$

$u(2,2) = u(2-\varepsilon, 2(1+\varepsilon))$

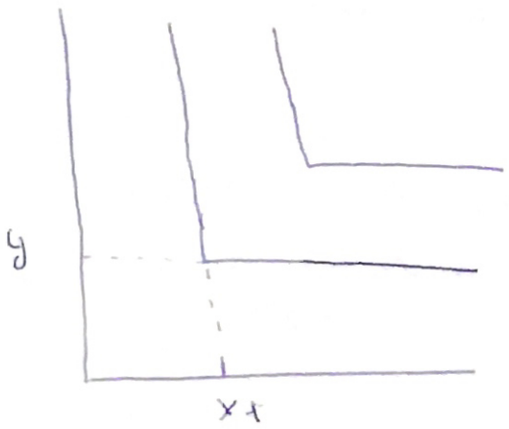
$u(2-\varepsilon, 2+\varepsilon)$

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?



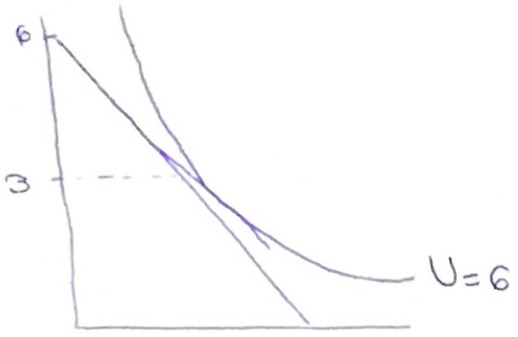
$x_1^2 = 2y$

(2,2)

8.

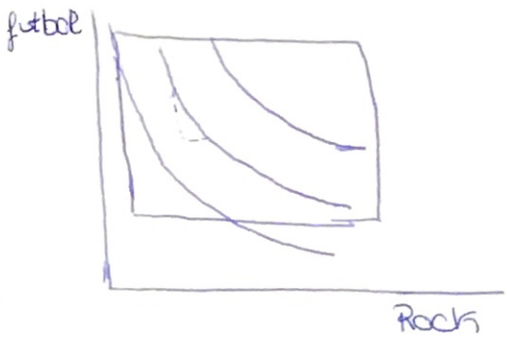
(a) $u(x,y) = \sqrt{xy}$

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

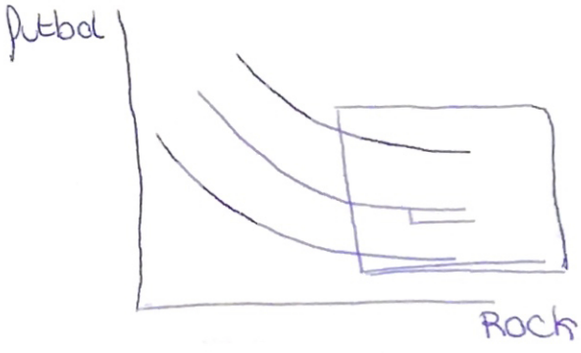


5.

a) Indifference curve Maria



Juan



6.

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

(a) $MRS = \frac{1}{2\frac{1}{2}\cdot\frac{1}{y}} = \sqrt{y}$ → MRS isn't a function of (x).

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

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

c) MRS = $u(x,y) = 4 \rightarrow \sqrt{y} = 16$ any value of x $x > 0$.

The consumer problem budget set ; interior and corner solutions

9)

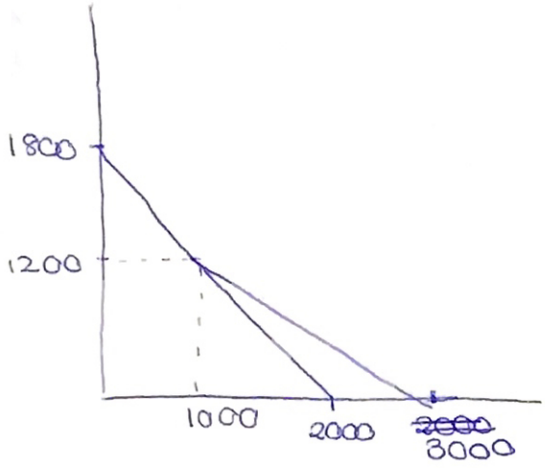
Gas 0'05 euros / m^3
electricity 0'06 euros / Kilowatt per hour $I = 120 €$

Gas $P_G = 0'05$ €/Kwh φ
electricity $P_G = 0'06$ €/Kwh φ $E \leq 1000$ Kwh
$P_G = 0'03$ €/Kwh φ $E > 1000$ Kwh

$0.05\,G + 0'06\,E = 120 \qquad E \leq 1000$

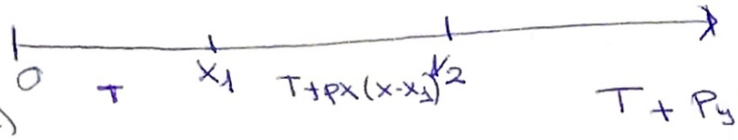
$0\,05\,G + 0'06 \times 1000 + 0'03\,(E - 1000) = 120$

$0'03E + 0'05G = 120 + (0'03 \cdot 1000) - (0'06 \cdot 1000)$



10)

$T + p_x(x_2 - x_1) + p^2_x(x_1 - x_2)$



(a)

$T + P_y y = I$ if $x \leq x_1$

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

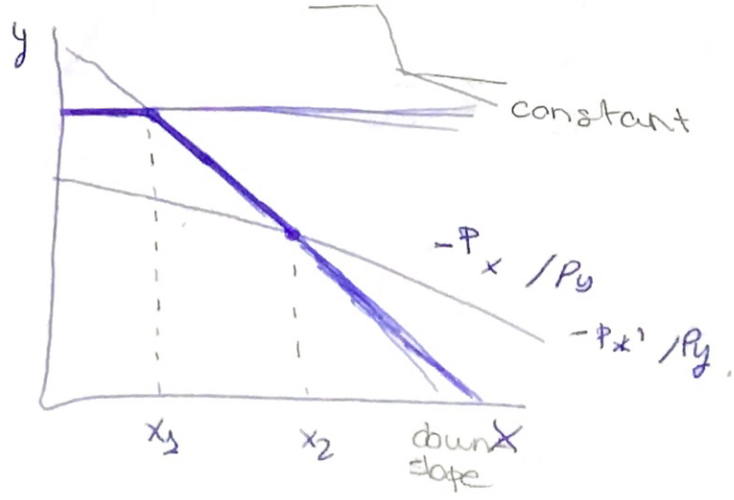
$T + P_x(x_2 - x_1)$ $x \geq x_2$

$T \quad x \leq x_1$

$P_x \rightarrow$ per unit $x \in (x_1, x_2)$

$P'_x \rightarrow$ per unit $x > x_2$

$P_x > P'_x$



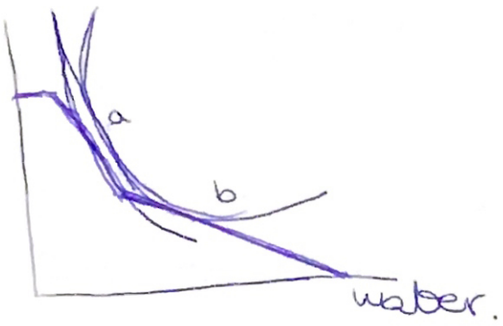
$$y = \frac{I - T}{P_y}$$

$$y = \frac{I - T}{P_y} - \frac{P_x}{P_y}(x - x_1)$$

$$+\frac{P_x}{P_y} > \frac{P'_x}{P_y}$$

b) more is better
monot.
- Not possible, the consumer will consume x → more is better

c)



M)

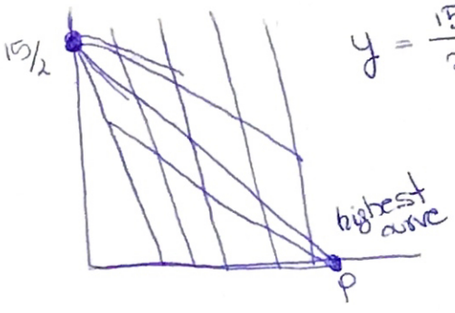
$u(x,y) = 2x + y$

income = 15 euros

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

$P_x\ x + P_1\ y = 15$

$MRS = 2$



$y = \frac{15}{2} - \frac{1}{2}\ x$

12)

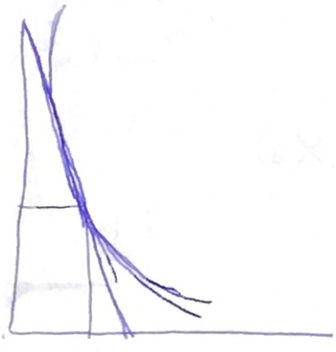
$1 + \sqrt{4} = 3$

food (x)
clothes (y)

$P_x\ x + P_y\ y = I$

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

$x = \frac{I}{P_x} - \frac{P_x}{4P_y} \qquad y = \frac{P_x}{4P_y}$



$P_x = 4$

$I = 10$

$P_y = 1$

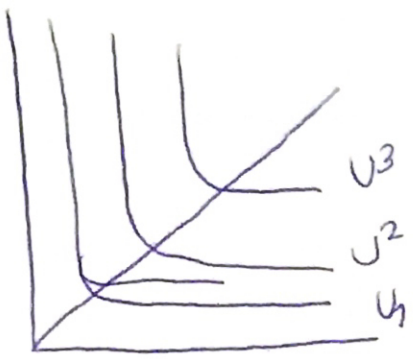
$I > \frac{P_x^2}{cP_y}$

$10 > 4$

$x = 0 \quad y = 3$

14)

(a)



Indiference curve

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

$x = y = 200/6 = 33'3$

(b)

$t = 5$ euro

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

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

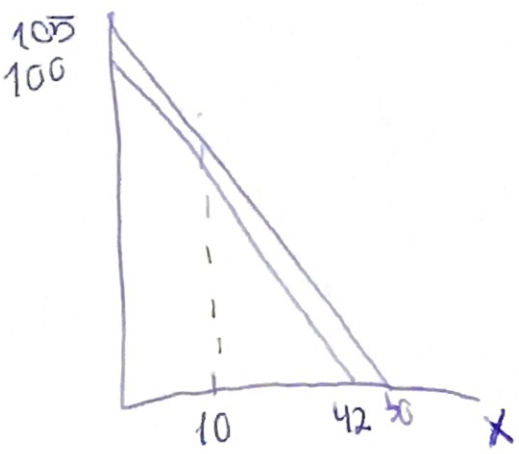
Si $x < 10 \rightarrow 200 = p_x x + p_y y$

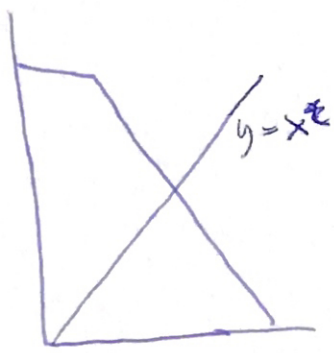
Si $x > 10 \rightarrow 200 = p_x 10 (p_x + t)(x - 10) + T_y y$

Si $x < 10$ $\quad 200 = 4x + 2y$

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

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





budget line

$200 = 4(10)$