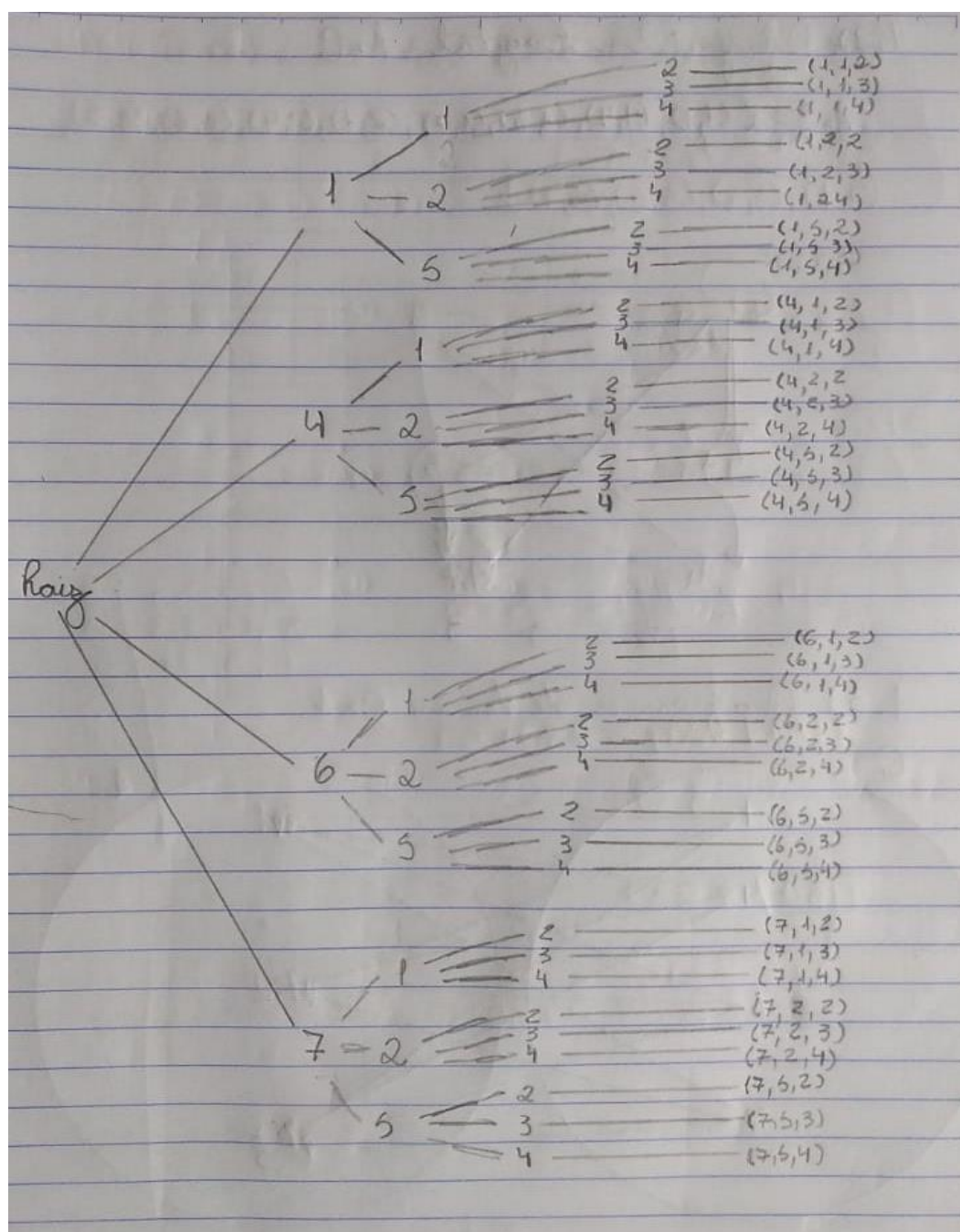


PROVA SUBSTITUTIVA MATEMÁTICA DISCRETA

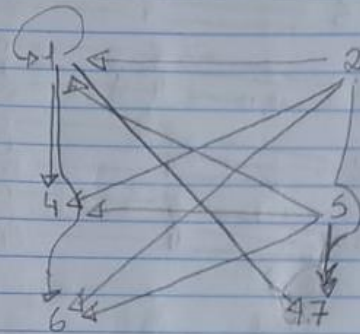
LUCAS BARBOSA BRANCALHÃO.

1) $A = \{1, 2, 5\}, B = \{2, 3, 4\}, C = \{1, 4, 6, 7\}$
1.1) Diagrama de árvore $C \times A \times B$

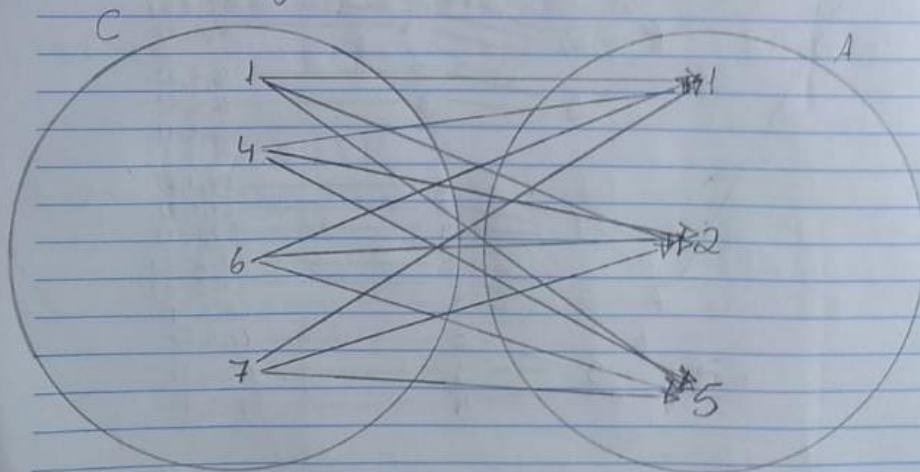


1.2) Diagramma Sagital $A \times C$

$$A \times C = \{(1,1), (1,4), (1,6), (1,7), (2,1), (2,4), (2,6), (2,7), (5,1), (5,4), (5,6), (5,7)\}$$



1.3) Diagramma de Venner $C \times A$



1.4) Tabela de dupla entrada $A \times C$

A \ B	1	4	6	7
1	(1,1)	(1,4)	(1,6)	(1,7)
2	(2,1)	(2,4)	(2,6)	(2,7)
5	(5,1)	(5,4)	(5,6)	(5,7)

2) Determinar $x \in \mathbb{Z}$ tal que os pares ordenados sejam iguais

$$\left(\frac{5}{3}x + \frac{1}{2}y, 11x + \frac{2}{5}y - 4\right) = \left(5y + 3, \frac{7}{3}x - 5\right)$$

$$\begin{cases} \frac{5}{3}x + \frac{1}{2}y = 51 + 3 \\ 11x + \frac{2}{5}y - 4 = \frac{7}{3}x - 5 \end{cases}$$

$$\begin{cases} \frac{5}{3}x + \frac{1}{2}y - 5y = 3 \\ 11x + \frac{2}{5}y - \frac{7}{3}x = 4 - 5 = -1 \end{cases}$$

$$\begin{cases} \frac{5}{3}x - \frac{9}{2}y = 3 & \frac{26}{3} \\ \frac{26}{3}x + \frac{2}{5}y = -1 & \left(\frac{15}{3}\right) \end{cases}$$

$$\begin{cases} \frac{130}{9}x - \frac{234}{6}y = \frac{78}{3} & + \\ -\frac{130}{9}x - \frac{10}{15}y = \frac{5}{3} \end{cases}$$

$$\frac{234}{6}y - \frac{10}{15}y = \frac{78}{3} + \frac{5}{3}$$

$$\begin{array}{r|l} 6, 15, 3, 3 & 2 \\ 3, 15, 3, 3 & 3 \\ 1, 5, 11 & 5 \\ \hline & 30 \end{array}$$

$$\frac{1170y - 20y = 780 + 50}{30}$$

$$1150y = 830$$

$$y = \frac{830^{+10}}{1150^{+10}} = \frac{83}{115}$$

83

$$\left\{ \begin{array}{l} \frac{5}{3}x - \frac{9}{2}y = 3 \quad \left(\frac{2}{5} \right) \end{array} \right.$$

$$\left\{ \begin{array}{l} \frac{26}{3}x + \frac{2}{5}y = -1 \quad \left(\frac{9}{2} \right) \end{array} \right.$$

$$\left\{ \begin{array}{l} \frac{10}{15}x - \frac{18}{10}y = \frac{6}{5} \end{array} \right.$$

$$\left\{ \begin{array}{l} \frac{234}{6}x + \frac{18}{10}y = \frac{-9}{2} \end{array} \right. +$$

$$\frac{10}{15}x + \frac{234}{6}x = \frac{-9}{2}$$

$$\frac{20}{30}x + \frac{1170}{30}x = \frac{-135}{30}$$

$$\begin{aligned} 1190x &= -135 \\ x &= \frac{-135}{1190} \end{aligned}$$

mmc

15, 6, 2	2
15, 3, 1	3
5, 1, 1	5
1, 1, 1	30

Prova Matemática Discreta Substitutivo

$$3) A = \{(a,b), \emptyset, c, \{d\}\}, B = [-1, +\infty), C = [-5, 4],$$

$$D = (\infty, 6]$$

Todos os elementos de A : 4

Todos os subelementos de A : $2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$

$$1^\circ) \emptyset$$

$$2^\circ) \{(a,b)\}, \{\emptyset\}, \{c\}, \{d\}$$

$$3^\circ) \{(a,b), \emptyset\}, \{(a,b), c\}, \{(a,b), d\}, \{c, d\}, \{c, \emptyset\}, \{d, \emptyset\},$$

$$4^\circ) \{(a,b), \emptyset, c\}, \{(a,b), \emptyset, d\}, \{c, d, \emptyset\}, \{(a,b), c, d\},$$

$$5^\circ) \{(a,b), \emptyset, c, d\}$$

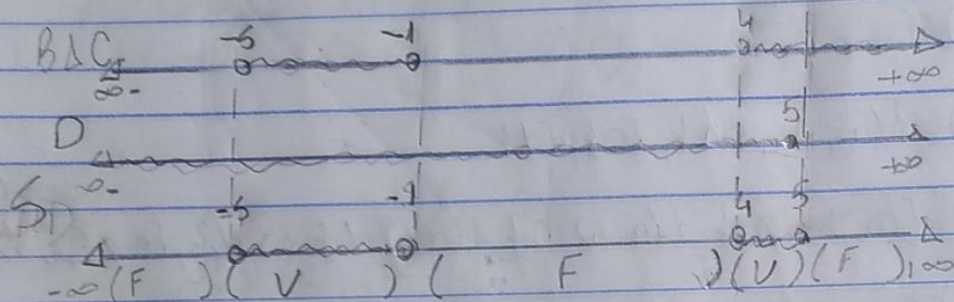
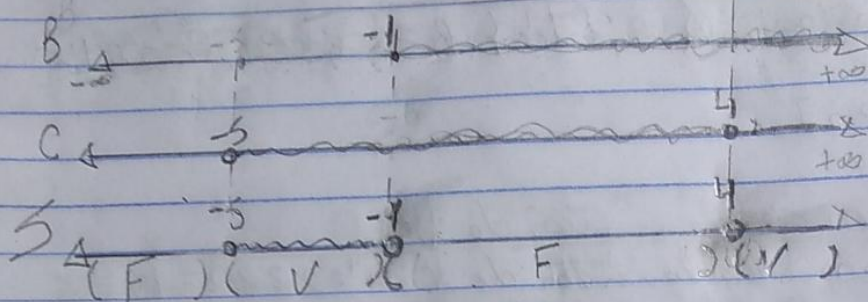
$$P(A) = \{\emptyset, \{(a,b)\}, \{\emptyset\}, \{c\}, \{d\}, \{(a,b), \emptyset\}, \{(a,b), c\},$$

$$\{(a,b), d\}, \{c, d\}, \{c, \emptyset\}, \{d, \emptyset\}, \{(a,b), \emptyset, c\}, \{(a,b), \emptyset, d\},$$

$$\{c, d, \emptyset\}, \{(a,b), c, d\}, \{(a,b), \emptyset, c, d\}\}$$

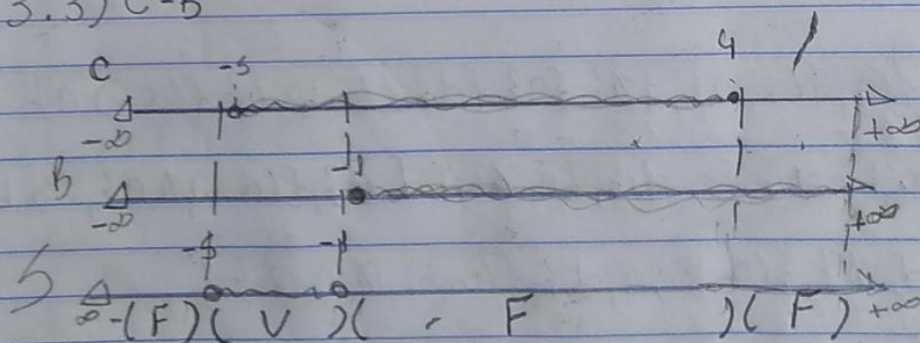


3.2) $(B \Delta C) \cap D$



$$(B \Delta C) \cap D = (-5, -1) \cup (4, 5) = \{x \in \mathbb{R} \mid -5 < x < -1\} \cup \{x \mid 4 < x < 5\}$$

3.3) $C - B$

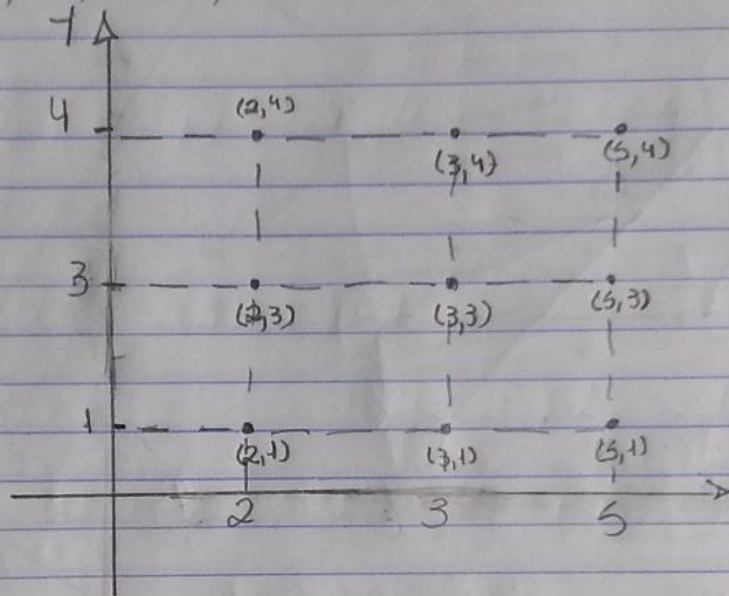


$$C - B = (-5, -1) = \{x \in \mathbb{R} \mid -5 < x < -1\}$$

4/5/2

4) 4.1) $A \times B$; $A = \{2, 3, 5\}$ e $B = \{1, 3, 4\}$

$$A \times B = \{(2, 1), (2, 3), (2, 4), (3, 1), (3, 3), (3, 4), (5, 1), (5, 3), (5, 4)\}$$



4.2) $A \times B$; $A = \{x \in \mathbb{R} / -2 < x \leq 3\}$ e $B = \{y \in \mathbb{R} / -3 \leq y < 5\}$

