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2º Semestre

Nome: Gabriel Gonçalves de Oliveira RA: 2111550021

Profª Marisa Atsuko Nitto - Matemática - 1º ADS

Lista de Exercícios - Aula 18

1) Escreva os conjuntos dados por enumeração de seus elementos:

1.1)  $A = \{x \in \mathbb{N} / x < 4\}$

$A = \{0, 1, 2, 3\}$

~~1.2)~~

1.2)  $B = \{x \in \mathbb{N} / x > 10\}$

$B = \{11, 12, 13, 14, 15, 16, \dots\}$

1.3)  $C = \{x \in \mathbb{N} / x < 8 \text{ e } x \text{ é ímpar}\}$

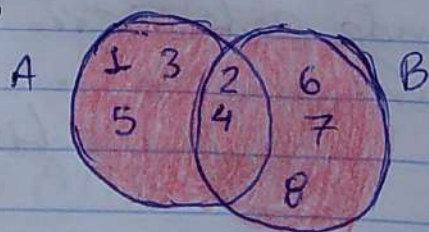
$C = \{1, 3, 5, 7\}$

1.4)  $D =$  Conjunto dos meses que começam com a letra J.

$D = \{\text{janeiro, junho, julho}\}$

2) Sejam os conjuntos  $A = \{1, 2, 3, 4, 5\}$ ,  $B = \{2, 4, 6, 7, 8\}$  e  $C = \{1, 6, 9, 10\}$ , determinar as operações e fazer o diagrama de Venn.

2.1)  $A \cup B$



$A \cup B$

$A \cup B = \{1, 2, 2, 3, 4, 4, 5, 6, 7, 8\}$   
 $\Rightarrow A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8\}$

+ elementos iguais dos dois conjuntos: 2 e 4.

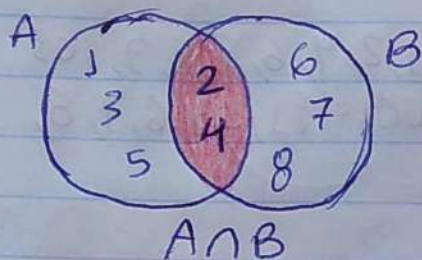
Portanto,  $A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8\}$



2.2)  $A \cap B$ 

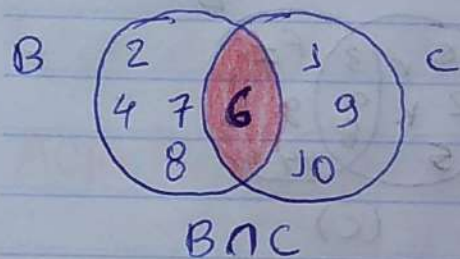
$$A \cap B = \{1, 2, 2, 3, 4, 4, 5, 6, 7, 8\}$$

$$\Rightarrow A \cap B = \{2, 4\}$$



\* elementos iguais dos dois conjuntos:  
2 e 4

Portanto,  $A \cap B = \{2, 4\}$

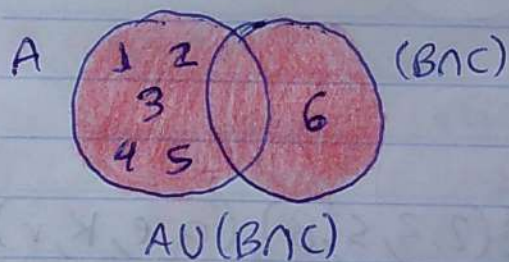
2.3)  $A \cup (B \cap C)$ 

$$B \cap C = \{1, 2, 4, 6, 6, 7, 8, 9, 10\}$$

$$B \cap C = \{6\}$$

\* Elemento igual dos dois conjuntos: 6

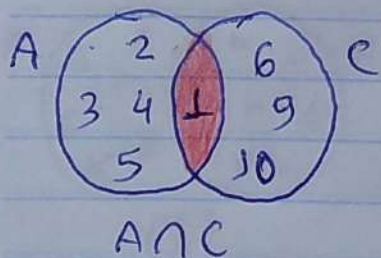
Portanto,  $B \cap C = \{6\}$



$$(B \cap C) \cup A = \{1, 2, 3, 4, 5, 6\}$$

\* Não existem elementos iguais nos dois conjuntos, Portanto:

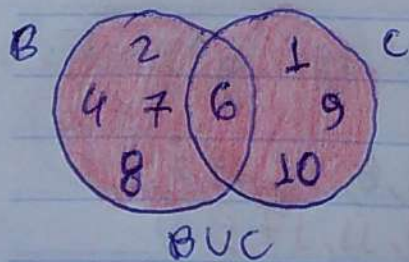
$$A \cup (B \cap C) = \{1, 2, 3, 4, 5, 6\}$$

2.4)  $(A \cap C) \cup (B \cap C)$ 

$$A \cap C = \{1, 1, 2, 3, 4, 5, 6, 9, 10\}$$

$$A \cap C = \{1\}$$

\* Elemento igual dos dois conjuntos: 1  
Portanto,  $A \cap C = \{1\}$



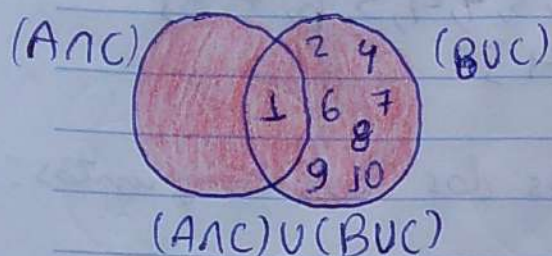
$$B \cap C = \{1, 2, 4, 6, 6, 7, 8, 9, 10\}$$

$$B \cap C = \{1, 2, 4, 6, 7, 8, 9, 10\}$$

\* Elemento igual dos dois conjuntos: 6  
Portanto,  $B \cap C = \{1, 2, 4, 6, 7, 8, 9, 10\}$



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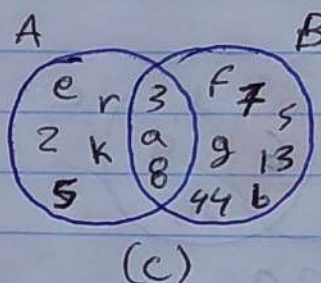
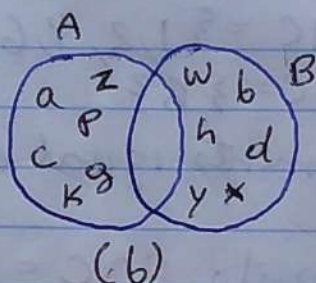
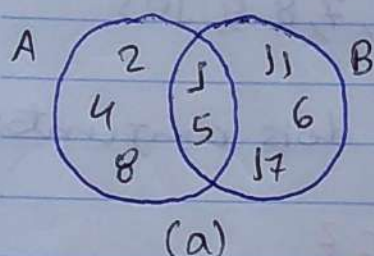
\*Elemento igual nos dois conjuntos:

1.

$$(ANC) \cup (BUC) = \{1, 1, 2, 4, 6, 7, 8, 9, 10\}$$

Portanto,  $(ANC) \cup (BUC) = \{1, 2, 4, 6, 7, 8, 9, 10\}$

3) Dados os diagramas de Venn, determinar para cada diagrama:



3.1) Os elementos do conjunto A

a)  $A = \{1, 2, 4, 5, 8\}$

b)  $A = \{a, c, g, k, p, z\}$

c)  $A = \{2, 3, 5, 8, a, e, k, r\}$  ou  $A = \{(2, 3, 5, 8), (a, e, k, r)\}$

3.2) Os elementos do conjunto B

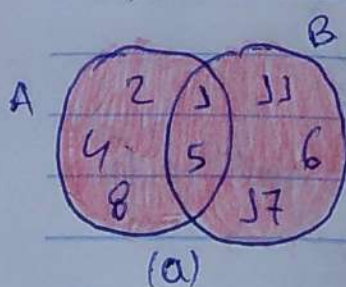
a)  $B = \{1, 5, 6, 11, 17\}$

b)  $B = \{b, d, h, w, x, y\}$

c)  $B = \{3, 8, 7, 13, 44, a, b, f, g, s\}$

ou  $B = \{(3, 7, 8, 13, 44), (a, b, f, g, s)\}$

3.3)  $A \cup B$

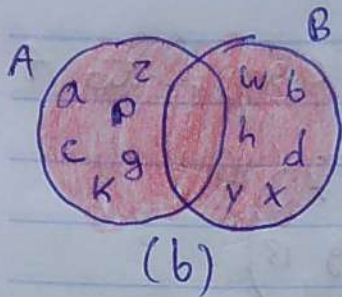


\*Elementos ~~que~~ iguais nos dois conjuntos:  
1, 5.

$$A \cup B = \{1, 1, 2, 4, 5, 5, 6, 8, 11, 17\}$$

Portanto,  $A \cup B = \{1, 2, 4, 5, 6, 8, 11, 17\}$

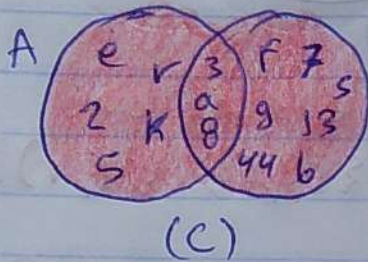




\* Não existem elementos iguais nos dois conjuntos.

$$A \cup B = \{a, b, c, d, g, h, k, w, x, y, z, p\}$$

Portanto,  $A \cup B = \{a, b, c, d, g, h, k, p, w, x, y, z\}$



\* Elementos iguais nos dois conjuntos: 3, 8 e a.

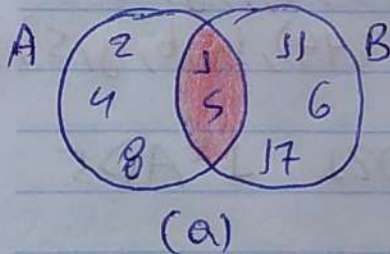
$$A \cup B = \{a, a, b, e, f, g, k, r, s, 2, 3, 3, 5, 8, 8, 7, 13, 44\}$$

Portanto,  $A \cup B = \{a, b, e, f, g, k, r, s, 2, 3, 5, 8, 7, 13, 44\}$

$$A \cup B = \{a, b, e, f, g, k, r, s, 2, 3, 5, 7, 8, 13, 44\}$$

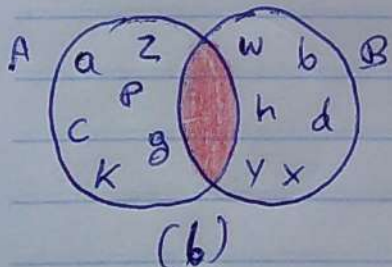
### 3.4) $A \cap B$

\* Elementos iguais nos dois conjuntos: 1, 5.



$$A \cap B = \{1, 1, 2, 4, 5, 5, 6, 8, 11, 17\}$$

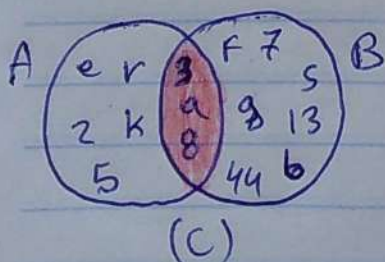
Portanto,  $A \cap B = \{1, 5\}$



\* Nesse caso não existem elementos iguais nos dois conjuntos.

$$A \cap B = \{a, b, c, d, g, h, k, p, w, x, y, z\}$$

Portanto,  $A \cap B = \emptyset$



\* Elementos iguais nos dois conjuntos: 3, 8 e a.

$$A \cap B = \{a, a, b, e, f, g, k, r, s, 2, 3, 3, 5, 7, 8, 8, 13, 44\}$$

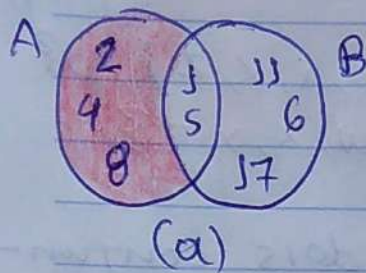
Portanto,  $A \cap B = \{a, 3, 8\}$  ou  $A \cap B = \{(3, 8), (a)\}$   
ou  $A \cap B = \{3, 8, a\}$



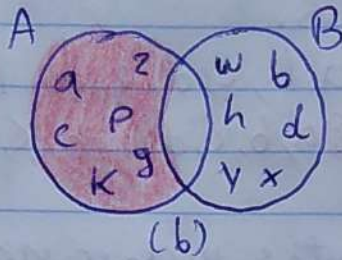
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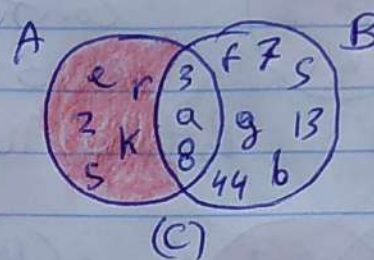
3.5) Elementos que pertencem apenas ao conjunto A



$$A = \{2, 4, 8\}$$

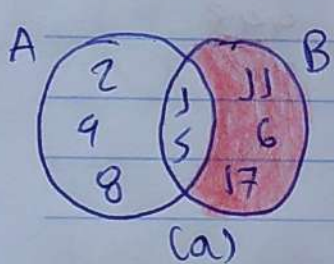


$$A = \{a, c, g, k, p, z\}$$

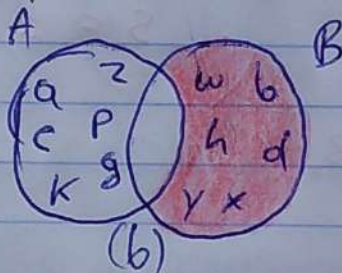


$$A = \{2, s, e, k, r\} \text{ ou } A = \{(2, s), (e, k, r)\}$$

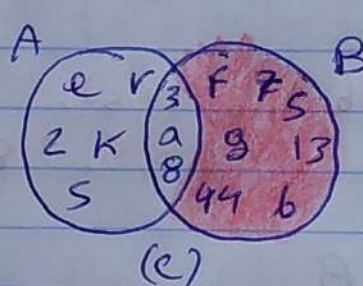
3.6) Elementos que pertencem apenas ao conjunto B



$$B = \{6, 11, 17\}$$



$$B = \{b, d, h, w, x, y\}$$



$$B = \{7, 13, 44, b, f, g, s\} \text{ ou } B = \{(7, 13, 44), (f, b, g, s)\}$$

Gabriel Gonçalves de Oliveira 2111550021 1º AD5