LISTA DE EXERCÍCIOS – CONJUNTOS

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1. Dados os conjuntos: $A = \{1, 2, 3\}$, $B = \{3, 4, 5\}$ e $C = \{4, 5, 6, 7\}$, calcular:

a) $A \cup B$
b) $B \cup C$
c) $A \cup (B \cup C)$
d) $A \cap B$
e) $A \cap C$
f) $(A \cup B) \cap (B \cap C)$
g) $(A \cap B) \cup C$
h) $(A \cap B) \cup (B \cap C)$

2. Sendo $A = \{x \in \mathrm{N} \mid 3 < x \leq 7\}$ e $B = \{x \in \mathrm{N} \mid 2 \leq x < 9\}$, determinar:

a) $A \cap B$
b) $A \cup B$

3. Sendo $A = \{x \in Z \mid |x| < 4\}$ e $B = \{x \in \mathrm{N} \mid x \leq 3\}$, determinar:

a) $A \cup B$
b) $A \cap B$

4. Dados os conjuntos: $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 5, 6, 8\}$ e $C = \{1, 3, 5, 6, 7\}$, calcular:

a) $A - B$
b) $B - A$
c) $A - C$
d) $C - B$

5. Dados os conjuntos $E = \{1, 2, 3, 4, 5, 6, 7, 8\}$, $A = \{1, 3, 5, 6, 7\}$ e $B = \{2, 4, 6, 8\}$, determinar:

a) C_E^A
b) C_E^B

6. Sendo $\cup = \{0, 1, 2, 3, 4, 5, 6\}$, $A = \{0, 2, 4, 6\}$ e $B = \{0, 1, 3, 5, 6\}$, determinar:

a) A^C
b) B^C

7. Sendo $\cup = \{1, 2, 3, 4, 5, 6\}$, $A = \{1, 3, 5\}$, $B = \{2, 4, 6\}$ e $C = \{1, 2, 3, 4\}$, determinar:

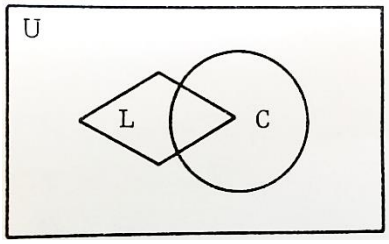
a) $A^C \cup B^C$
b) $B^C \cap C^C$
c) $(A \cap B) \cup B^C$
d) $(B - A^C) \cup C^C$
e) $(A \cap C)^C$
f) $(C - B)^C$

8. Dados os conjuntos $\cup = \{1, 2, 3, \ldots, 12\}$, $A = \{2, 4, 6, 8, 10, 12\}$, $B = \{1, 3, 5, 7, 9, 11\}$ e $C = \{4, 5, 6, 7, 8\}$, efetuar as seguintes operações:

a) $(C - A) \cap B$
b) $(C \cap A) - B$
c) $(B - C) \cap A$
d) $(B - A) \cap C$
e) $(A \cap C) \cup B$
f) $(A - C) \cap B$
g) $(A \cap B) \cup C$
h) $(A - B) \cap C$

i) $(C \cap B) - A$

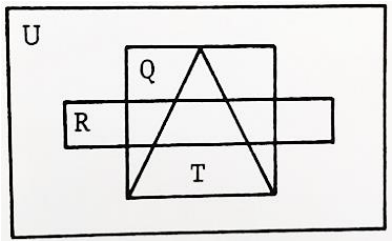
9. No diagrama de Venn a seguir, marcar o conjunto resultante das operações:



a) $L \cup C$
b) $L \cap C$
c) $L - C$
d) $C - L$
e) C^C
f) L^C
g) $L^C \cap C^C$
h) $L \cap C^C$
i) $(C - L)^C$

10. No diagrama de Venn a seguir, marcar o conjunto resultante das operações:

a) $R \cap (T \cap Q)$
b) $(Q - R) \cap T$
c) $(R^C - Q^C) \cup T$
d) $(R^C \cap Q) \cup (T^C \cap R)$
e) $\left[(T^C - R^C) \cup (R^C - Q)\right]^C$
f) $\left[(T^C \cap Q) \cup (R^C \cap T)\right]^C$
g) $\left[(R^C - Q^C) \cup (T^C \cap T) - R\right]^C$



Respostas esperadas:

1.
a) $\{1, 2, 3, 4, 5\}$
b) $\{3, 4, 5, 6, 7\}$
c) $\{1, 2, 3, 4, 5, 6, 7\}$
d) $\{3\}$
e) Ø
f) $\{4,5\}$
g) $\{3, 4, 5, 6, 7\}$
h) $\{3, 4,5\}$

2.
a) A
b) B

3.
a) A
b) B

4.
a) $\{1, 3\}$
b) $\{6, 8\}$
c) $\{2, 4\}$
d) $\{1, 3, 7\}$

5.
a) $\{2, 4, 8\}$
b) $\{1, 3, 5, 7\}$

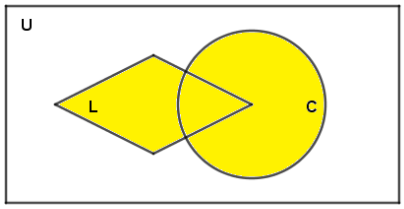
6.
a) $\{1, 3, 5\}$
b) $\{2, 4\}$

7.
a) $\{2, 4, 5, 6\}$
b) $\{5\}$
c) $\{1, 3, 5\}$
d) $\{5, 6\}$
e) $\{2, 4, 5, 6\}$
f) $\{2, 4, 5, 6\}$

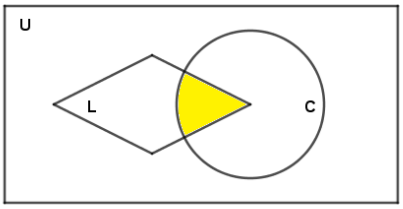
8.
a) $\{5, 7\}$
b) $\{4, 6, 8\}$
c) Ø
d) $\{5, 7\}$
e) $\{1, 3, 4, 5, 6, 7, 8, 9, 11\}$
f) Ø
g) $\{4, 5, 6, 7, 8\}$
h) $\{4, 6, 8\}$
i) $\{5, 7\}$

9)

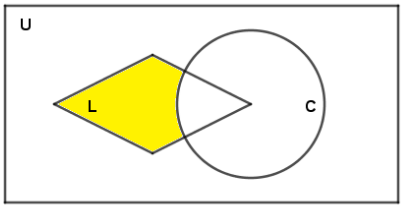
a)



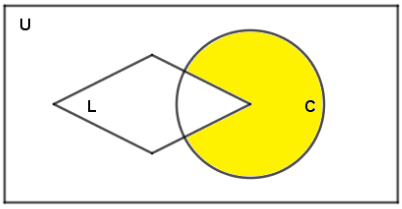
b)



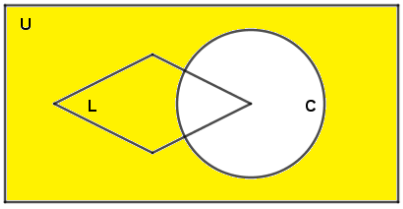
c)



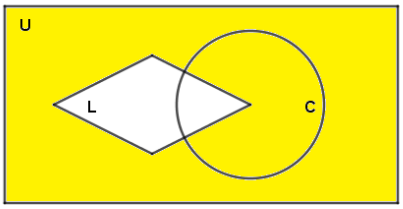
d)



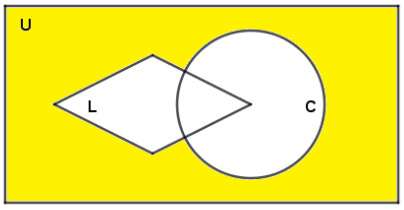
e)



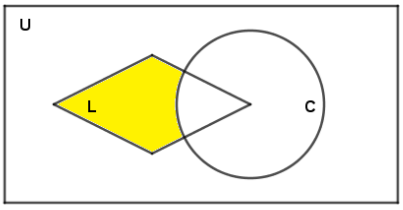
f)



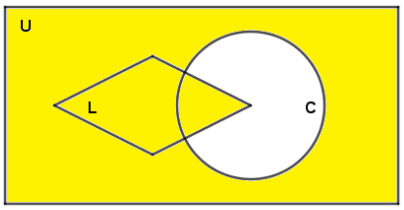
g)



h)

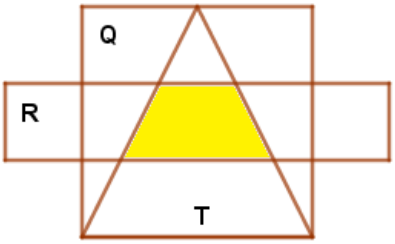


i)

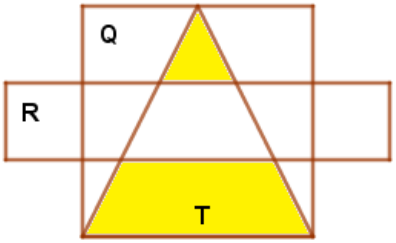


10)

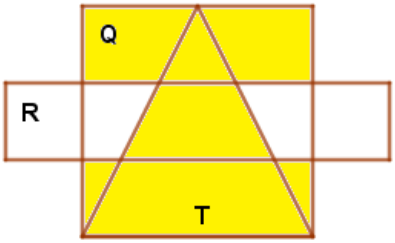
a) $R \cap (T \cap Q)$



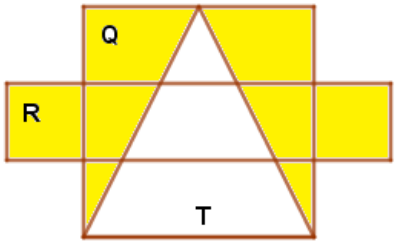
b) $(Q - R) \cap T$



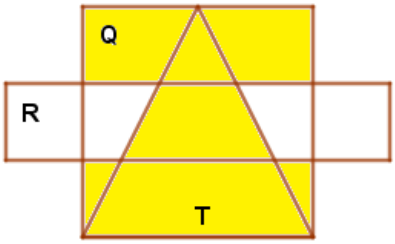
c) $(R^C - Q^C) \cup T$



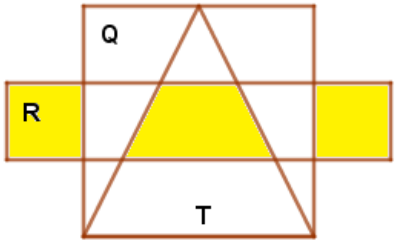
d) $(R^C \cap Q) \cup (T^C \cap R)$



e) $[(T^C - R^C) \cup (R^C - Q)]^C$



f) $[(T^C \cap Q) \cup (R^C \cap T)]^C$



g) $[(R^C - Q^C) \cup (T^C \cap T) - R]^C$