Universidade Federal da Paraíba
Departamento de Estatística
Probabilidade IV
Atividade 1 - teoria de conjuntos (1 ponto)
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$$B = \left\{ x \ ; \ x > \frac{9}{4} \text{ e } x < \frac{6}{5} \right\} \text{ e}$$

$D = \{x \ ; \ x \text{ é divisível por } 0\}$

2

$$\begin{aligned}
\mathcal{P}(A) = \{ & \\
& \varnothing \\
& \{a\}, \{b\}, \{c\}, \{d\}, \\
& \{a,b\}, \{a,c\}, \{a,d\}, \{b,c\}, \{b,d\}, \{c,d\}, \\
& \{a,b,c\}, \{a,b,d\}, \{a,c,d\}, \{b,c,d\} \\
& \{a,b,c,d\} \\
\} &
\end{aligned}$$

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a) V
b) F, {a} não pertence a {a,b}, ele é subconjunto
c) F, {0} possui apenas um elemento e não é ∅
d) F, ∅ é um conjunto que não possui elementos
e) F, apenas ∅ é subconjunto de ∅
f) V
g) V
h) V
i) V
j) F, {{a,b,c,d}} possui apenas um elemento: {a,b,c,d} ≠ {a,b}

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$$\begin{aligned}
A \cap B &= \{b,c,d\} \\
A \cap C &= \{c\} \\
B \cap C &= \{c,e\} \\
A \cap B \cap C &= \{c\} \\
A \cup B &= \{a,b,c,d,e\} \\
A \cup C &= \{a,b,c,d,e,f\} \\
B \cup C &= \{b,c,d,e,f\} \\
A \cup B \cup C &= \{a,b,c,d,e,f\}
\end{aligned}$$

Nenhum par de conjuntos são disjuntos pois nenhuma interseção resultou em vazio

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a) V	f) V	k) V
b) F	g) V	l) V
c) F	h) F	m) V
d) V	i) F	n) V
e) V	j) V	o) V

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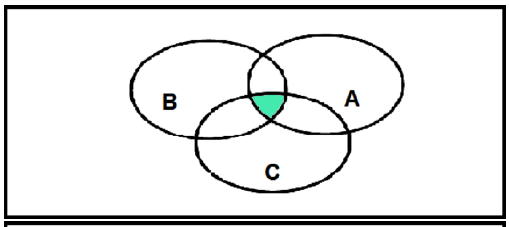
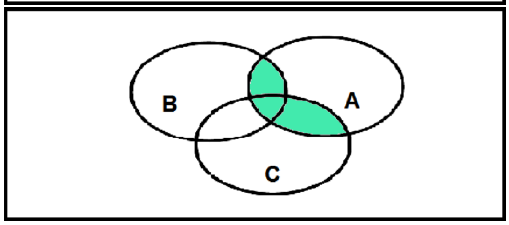
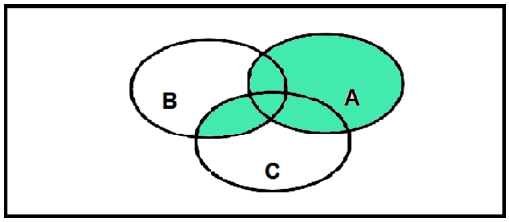


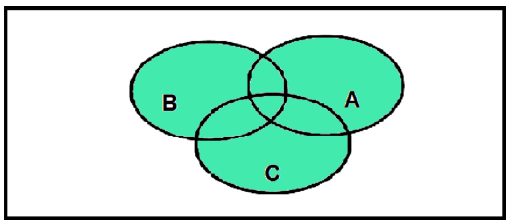
$A \cap B \cap C$



$A \cap (B \cup C)$



$A \cup (B \cap C)$



$A \cup (B \cup C)$

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$$A - B = \{a, b\}$$
$$B - A = \{e, f, g\}$$
$$C - B = \{b\}$$
$$(A \cup C) - B = \{a, b\}$$
$$A - (B \cap C) = \{a, b, c\}$$
$$(A \cup B) - (A \cap C) = \{a, c, e, f, g\}$$

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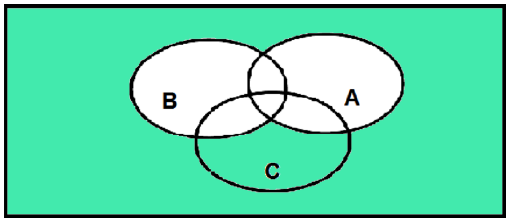
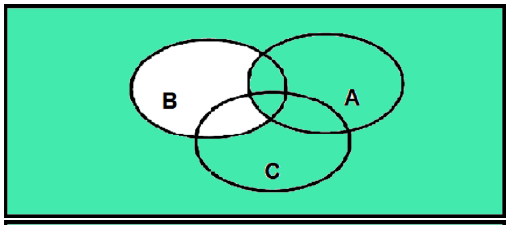
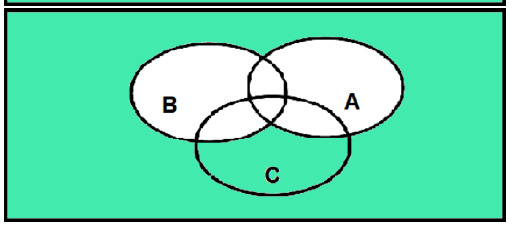


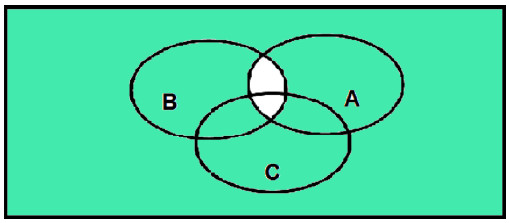
$A^c - B$



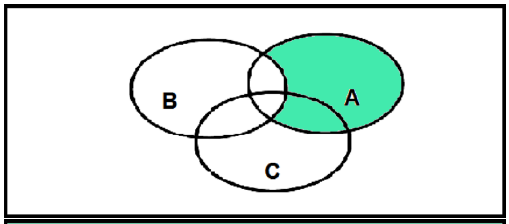
$B^c \cup A$



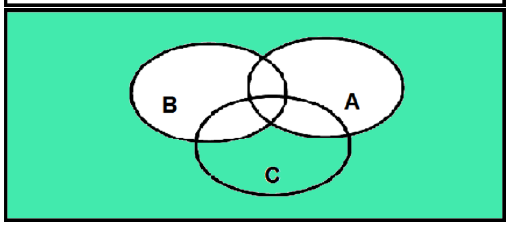
$(A \cup B)^c$



$(A \cap B)^c$



$B^c \cap A$



$A^c - (A \cup B)$

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a) $(A - C) \cup (B - C) = (A \cap C^c) \cup (B \cap C^c) = (A \cup B) \cap C^c = (A \cup B) - C$

b) $(A - C) \cap (B - C) = (A \cap C^c) \cap (B \cap C^c) = (A \cap B) \cap C^c = (A \cap B) - C$ ■

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$A \cap (B - A) = A \cap (B \cap A^c) = (A \cap A^c) \cap B = \varnothing \cap B = \varnothing$ são disjuntos

$A \cup (B - A) = A \cup (B \cap A^c) = (A \cup B) \cap (A \cup A^C) = (A \cup B) \cap U = A \cup B$ ■

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$$A \cup B = [0, 5]$$
$$A \cap B = (3, 5)$$
$$B \cup C = (2, 5]$$
$$C \cup (A \cap B) = (2, 5)$$