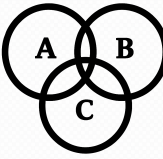
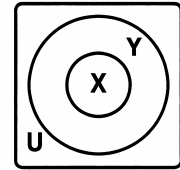
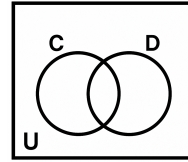
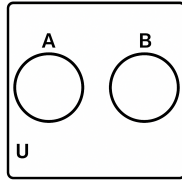
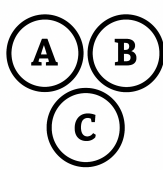


Introduction



$$|A \cup B| = |A| + |B|$$

$$|A \cap B| = 0$$

$$|A \cup B^c| = |B^c|$$

$$|A \cap B^c| = |A|$$

$$|A^c \cup B| = |A^c|$$

$$|A^c \cap B| = |B|$$

$$|A^c \cup B^c| = |U|$$

$$|A^c \cap B^c| = |U| - |A| - |B|$$

$$|C \cup D| = |C| + |D| - |C \cap D|$$

$$|C \cap D| = |C| + |D| - |C \cup D|$$

$$|C \cup D^c| = |U| - |D| + |C \cap D|$$

$$|C \cap D^c| = |C| - |C \cap D|$$

$$|C^c \cup D| = |U| - |C| + |C \cap D|$$

$$|C^c \cap D| = |D| - |C \cap D|$$

$$|C^c \cup D^c| = |U| - |C \cap D|$$

$$|C^c \cap D^c| = |D| - |C \cap D|$$

$$|X \cup Y| = |Y|$$

$$|X \cap Y| = |X|$$

$$|X \cup Y^c| = |U| - |Y| + |X|$$

$$|X \cap Y^c| = 0$$

$$|X^c \cup Y| = |X^c|$$

$$|X^c \cap Y| = |Y| - |X|$$

$$|X^c \cup Y^c| = |X^c|$$

$$|X^c \cap Y^c| = |Y^c|$$

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$$B = (A \cap B) \cup (A^c \cap B)$$

$$D = (C \cap D) \cup (C^c \cap D)$$

$$Y = (X \cap Y) \cup (X^c \cap Y)$$

Introduction



$$B = (A \cap B) \cup (A^c \cap B)$$
$$B = \emptyset \cup B$$
$$B = B$$

∴ 



$$D = (C \cap D) \cup (C^c \cap D)$$
$$D = (C \cap D) \cup (C - (C \cap D))$$
$$D = D$$

∴ 



$$Y = (X \cap Y) \cup (X^c \cap Y)$$
$$Y = X \cup (Y - X)$$
$$Y = Y$$

∴ 