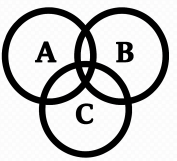
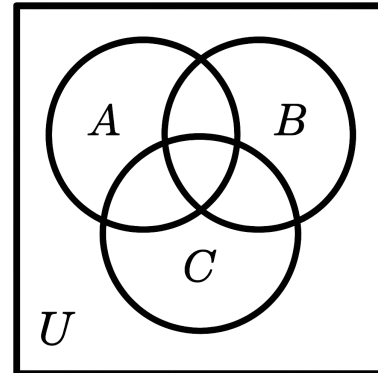
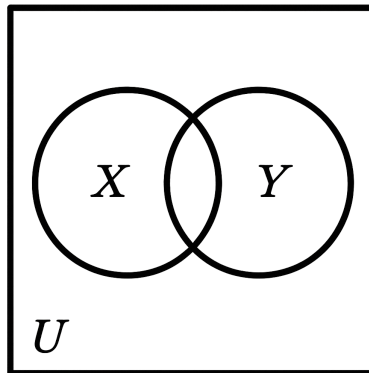
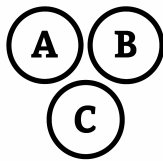


G

Set Operations

G



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

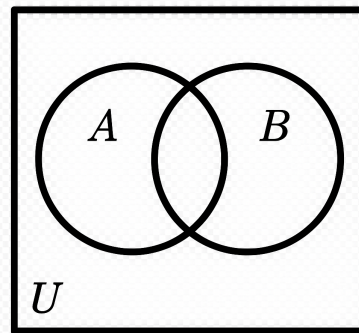
$$|X \cap Y| = |X| + |Y| - |X \cup Y| = |U| - |X^c \cup Y^c|$$

$$|A \cup B \cup C| = |A| + |B| + |C| - |A \cap B| - |B \cap C| - |A \cap C| + |A \cap B \cap C|$$

$$|A \cap B \cap C| = -|A| - |B| - |C| + |A \cup B| + |B \cup C| + |A \cup C| + |A \cup B \cup C|$$

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

?



$$|U| = 100$$

$$|A \cup B| = 70$$

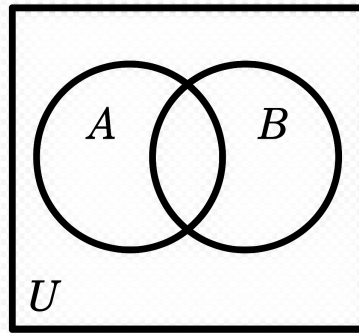
$$|A \cup B^c| = 90$$

$$|A| = ?$$

G

Set Operations

G



$$\begin{aligned} |U| &= 100 \\ |A \cup B| &= 70 \\ |A \cup B^C| &= 90 \\ |A| &= ? \end{aligned}$$

$$\begin{aligned} |A| &= |(A \cup B) \cap (A \cup B^C)| \\ |A| &= |(A \cup B)| + |(A \cup B^C)| - |(A \cup B) \cup (A \cup B^C)| \\ |A| &= |(A \cup B)| + |(A \cup B^C)| - |(A \cup B \cup B^C)| \\ |A| &= |(A \cup B)| + |(A \cup B^C)| - |(A \cup U)| \\ |A| &= |(A \cup B)| + |(A \cup B^C)| - |U| \\ |A| &= 70 + 90 - 100 = 60 \end{aligned}$$