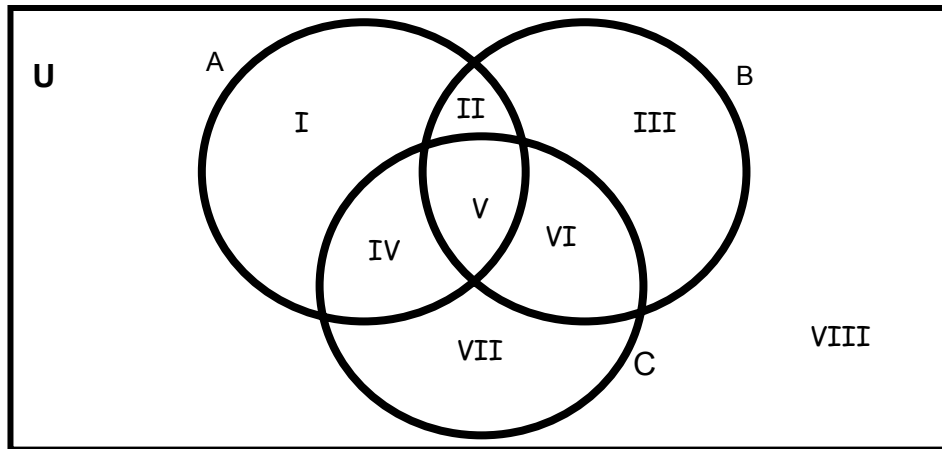


# VENN DIAGRAMS WITH THREE SETS

## General Procedure for constructing Venn Diagrams with Three Sets A, B, and C



1. Determine the elements that are common to all three sets ( $A \cap B \cap C$ ). These will be placed in **region V**.
2. Determine the elements that are common to sets A and B only ( $A \cap B \cap C'$ ). These elements are to be placed in **region II**.
3. Determine the elements that are common to sets A and C only ( $A \cap C \cap B'$ ). These elements are to be placed in **region IV**.
4. Determine the elements that are common to sets B and C only ( $B \cap C \cap A'$ ). These elements are to be placed in **region VI**.
5. Determine the elements that are found only in set A. These elements will be placed in **region I**.
6. Determine the elements that are found only in set B. These elements will be placed in **region III**.
7. Determine the elements that are found only in set C. These elements will be placed in **region VII**.
8. Finally, determine the elements that are found in the **universal set** but are not found in sets A, B, or C. These are to be placed in **region VIII**.

## VENN DIAGRAMS WITH THREE SETS

### Example:

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During a session of the U.S. Senate, three bills were voted on. The votes of six senators are shown in the table below. Determine in which region each senator would be placed.

The set labeled bill 1 represents the set of senators who voted yes on bill 1, and so on.

Senator	Bill 1	Bill 2	Bill 3	Region
Grump	Yes	No	No	I
Happi	No	No	Yes	VII
Turwilliger	No	No	No	VIII
Dillinger	Yes	Yes	Yes	V
Isiatere	No	Yes	Yes	VI
Smith	No	Yes	No	III
Hutchinson	Yes	Yes	No	II
Graham	Yes	No	Yes	IV

