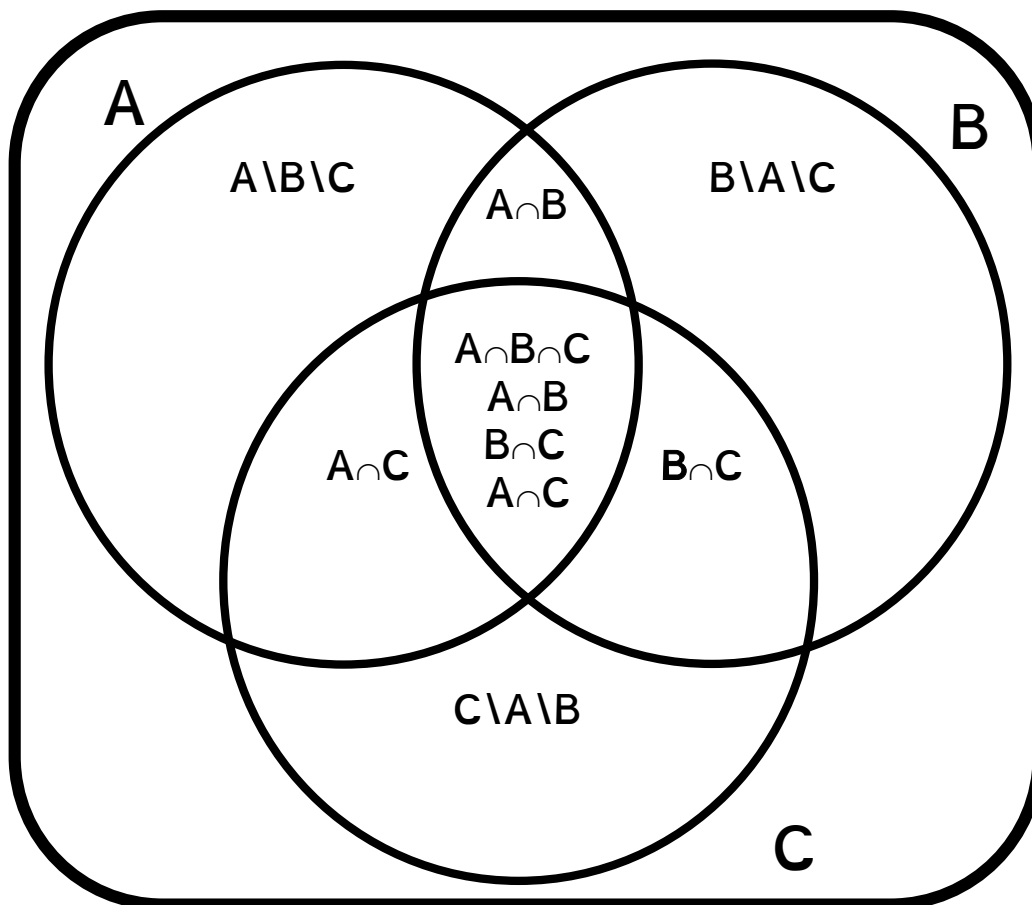


# 1.4 Applications of Set Theory Notes

To represent three intersecting sets with a Venn diagram, use three intersecting circles



**NOTE:** these regions can be described with different notation. These regions are just the most basic ones.

Using the Principle of Inclusion and Exclusion to Determine the number of elements in the union of three sets:

$$n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(A \cap C) - n(B \cap C) + n(A \cap B \cap C)$$

You can use concepts related to sets to search for websites on the internet:

- Put an exact phrase in quotation marks
- Use the words “and” or “or” between two words

It is usually very useful to visualize a problem with a diagram.

- Identify which sets are defined by the context
- Identify how they overlap
- Identify regions of the overlaps that are of interest in the problem