

Set Operations Combined

Text – Chapter 2 – Section 4;
In-class Assignment 4

Areas in a Venn Diagram

- ♦ A Venn Diagram having 2 intersecting circles (sets) has 4 areas.
 - Each area in the diagram has a verbal description.
- ♦ A Venn Diagram having 3 intersecting circles has 8 areas.
 - Each area in the diagram has a verbal description.

In-class Assignment 4 - 1

Known Sets and Venn Diagrams

- ♦ Let $U = \{a, b, c, \dots, k\}$
 $A = \{a, c, e, g, i\}$
 $B = \{d, e, f, g, h\}$
 $C = \{a, b, d, f, j\}$
- ♦ Place the elements of A, B, and C in the correct areas of the diagram.

In-class Assignment 4 - 2

Venn Diagrams for Sets Whose Elements Are Not Known

- ♦ Sets whose elements are not known can be pictured in a Venn diagram.
- ♦ Steps to picture such a set.
 - Draw a diagram with a circle to represent each of the component sets.
 - Be very organized working first within parentheses or braces. One of the operations should be used for each step.
 - Complement is done first if 2 operations are in one set of parentheses.

In-class Assignment 4 - 3

Example of Picturing a Set

$$[(A-C') \cup (B' \cap A)]'$$

$$A = 1,2,3,4 \text{ and } C' = 2,4,6,8$$

$$(A-C') = 1,3$$

$$B' = 3,4,7,8 \text{ and } A = 1,2,3,4$$

$$(B' \cap A) = 3,4$$

$$[(A-C') \cup (B' \cap A)] = 1,3,4$$

$$[(A-C') \cup (B' \cap A)]' = 2,5,6,7,8$$

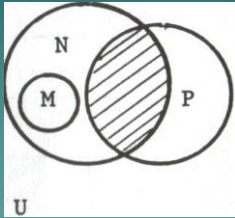
In-class Assignment 4 - 4

Diagrams of Sets with Other Relationships

- ♦ Draw a diagram for the following sets M, N, P such that $M \cap P = \emptyset, P \not\subset N, P \cap N \neq \emptyset$.
- ♦ Shade $M \cup P - N \cap P'$
 - Circle M is inside of N.
 - Circles M and P do not overlap.
 - P is not inside of N but they overlap.

In-class Assignment 4 - 5

The Shaded Set



In-class Assignment 4 - 5