Friday, Week 1
Chapters 2.1-2.2

Warmup

Sets

Define using set builder notation:

- $[0, 2]$
- $[-1, 1)$
- $[0, \infty)$
- $\{\ldots, -6, -4, -2, 0, 2, 4, 6, 8, \ldots\}$
- $\{0, 1, 4, 9, 16, \ldots\}$

Make a set membership table for the set $A \cup B$.

Let the universe U be the set of all animals, let C be the set of all cats, M be the set of all mammals, W be the set of animals that live in the water. In a sentence, describe...

1. $\overline{C}$
2. $M - C$
3. $\overline{W} \cap M$
4. $\overline{M} \cup C$
5. $W \cap C$
6. $C \cap M$

At an ice cream parlor your choice of toppings includes fudge, nuts, and cherries. Find the power set of $\{F, N, C\}$. What does it describe?

Is there a good way to write the set as a Cartesian product?

- Colors of the rainbow
- Squares on a chess board
- (52) cards in a deck
- (54) cards in a deck, including two jokers
- The prime numbers
- All points in the x-y plane
- All points on the line $y = 2x$

If $A \subset B$ then $\overline{B} \subset \overline{A}$.

1. Illlustrate this with Venn diagrams.
2. What rule of inference does this correspond to?