

1. Intersection

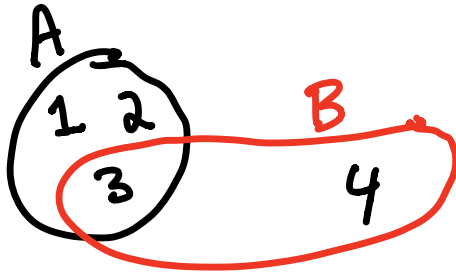
2. Union

3. Cardinality

4. Venn Diagrams

$$A = \{1, 2, 3\}$$

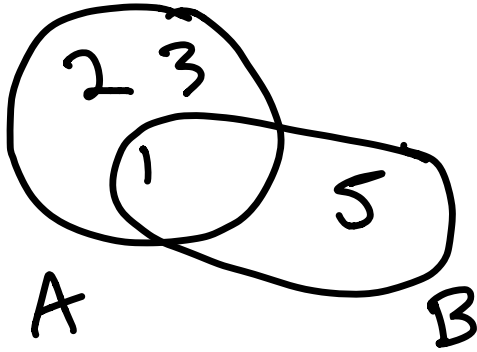
$$B = \{3, 4\}$$



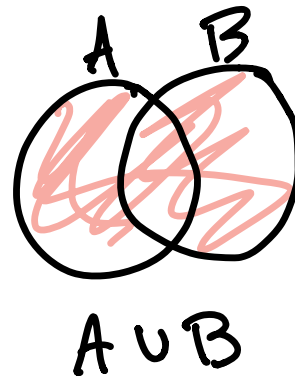
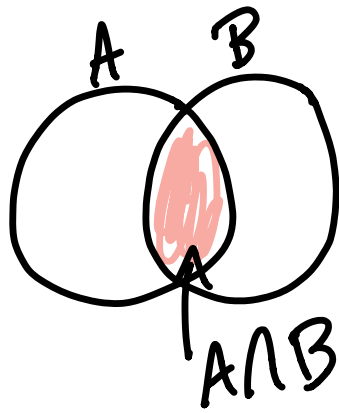
"intersection"
of A and B is ~~the~~^{the}
all elements that
are in A and B

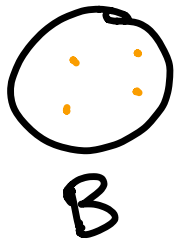
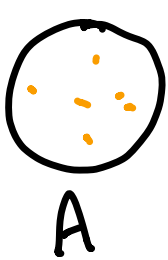
$A \cap B =$
is the intersection
of A and B

$$A = \{1, 2, 3\} \quad B = \{1, 5\}$$



The union of A and B is ^{all} the ~~set~~ of elements in A or B and we write this $A \cup B$





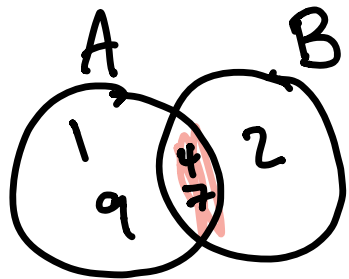
\emptyset = "null set"
empty set

How big is the intersection of
A and B?

Cardinality of a set is how many elements are in the set

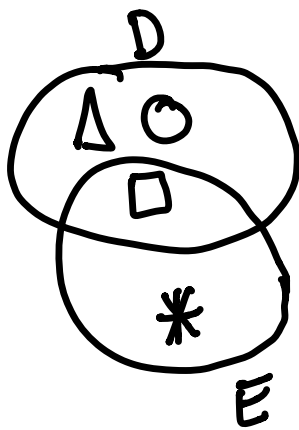
$F = \{ \triangle, \square, \circ \}$ cardinality?

$|F| = 3$ "vert"



$$|A \cap B|$$

↑
~~intersection~~
cardinality of intersection



$|D|$ = How big is this?
What is the "cardinality"

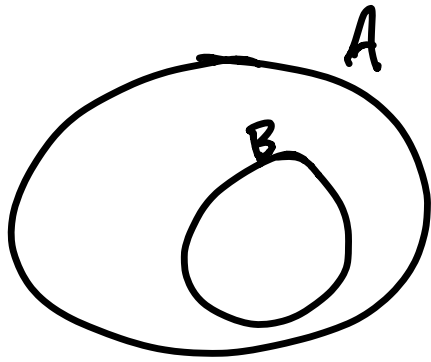
$$E = \{\square, *\}$$

E is a set!
2 is a number!

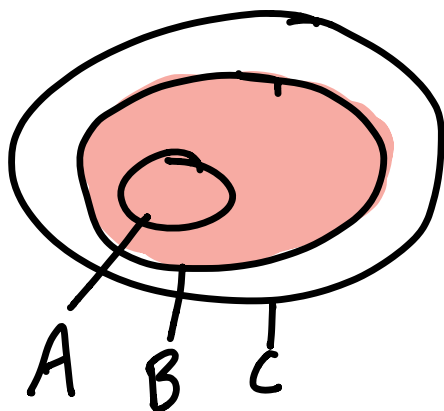
$$|D \cup E|$$

$$|E| = 2 \quad \text{"type checking"}$$

Cardinality is a number!
 $\{ \} \leftarrow \text{set}$



$B \subset A$ if all
items in B
are in A



$$A \cup B = B \quad \text{so } (A \cup B) \cap C = B \cap C = B$$

$$|C| - |A \cup B| = ?$$

$$A \cup B = B$$

$$|C| - |B| = ?$$

$$10 - 6 = 4$$