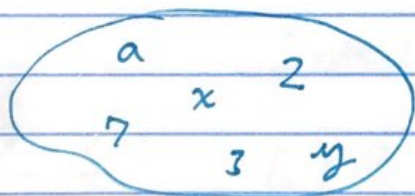# Ch. 6

A finite set S is a collection of items called elements
(the elements)
They^ can be numbers, letters, shapes, points, anything describable!

Ex: $S = \{a, 2, x, 7, 3, y\}$

$S = \{2, 7, x, a, 3, y\}$

No specific order!

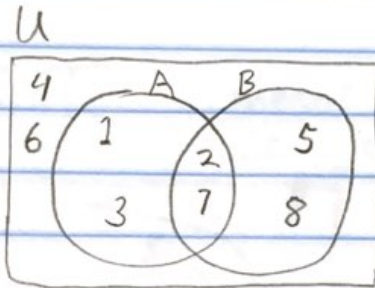→ "$\in$" means element of; $7 \in S$,

Operations on Sets
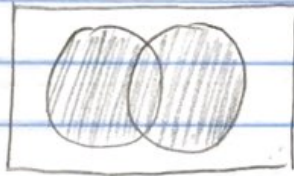
$A \cup B$ = the set of all elements in A OR in B

Ex:
$A = \{1, 2, 7, 3\}$ $B = \{5, 2, 7, 8\}$

$A \cup B = \{1, 5, 2, 7, 3, 8\}$

Picture: Let $U = \{1, ..., 8\}$

U

A ∪ B

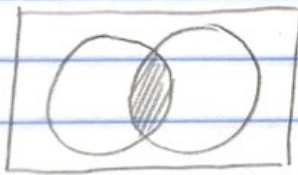Union

$\rightarrow$ * $A \cup B = B \cup A$
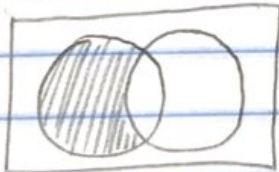
A ∩ B

Intersection | * elements
$\rightarrow$ in A AND B

$A \cap B = \{2, 7\}$

$\rightarrow$ * $A \cap B = B \cap A$

A − B

Subtraction
$A - B = \{1, 3\}$
$\rightarrow$ * elements in
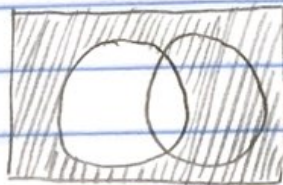A AND not in B

B − A
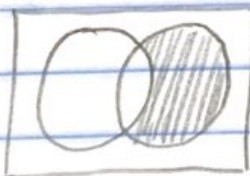
$B - A = \{5, 8\}$
$\rightarrow$ * elements in
B AND NOT in A.

$A^c = \bar{A}$

Complement of A,
relative to U

$A^c = \{4, 6, 5, 8\}$