'1 p: you have the flu

q: you miss the final exame

a) $\neg p$: you don't have the flu

b) $p \wedge q$ you have the flu and you miss the final

you miss the final exam because you have the flu

$\neg p \wedge p \equiv p \wedge \neg p$

p	$\neg p$	$\neg p \wedge p$
T	F	F
F	T	F

$p \rightarrow \neg q$

p	q	$\neg q$	$p \rightarrow \neg q$
T	T	F	F
T	F	T	T
F	T	F	T
F	F	T	T

$$p \leftrightarrow q \equiv (p \wedge q) \vee (\neg p \wedge \neg q)$$

p	q	$\neg p$	$\neg q$	$p \wedge q$	$\neg p \wedge \neg q$	$(p \wedge q) \vee (\neg p \wedge \neg q)$	$p \leftrightarrow q$
T	T	F	F	T	F	T	T
T	F	F	T	F	F	F	F
F	T	T	F	F	F	F	F
F	F	T	T	F	T	T	T

$$p \hookrightarrow q \equiv (p \wedge q) \vee (\neg p \wedge \neg q)$$

$N(x)$: x (student) has visited North Dakota

a) $\exists x\, N(x)$: there exists a student in your class has visited North Dakota

$\exists x \neg N(x)$: there exists a student in your class has not visited N.D.

$\neg \exists x\, N(x)$: No student in class has visited N.D.

$C(x)$: x has a cat x: student

$D(x)$: x has a dog

A student has a cat and a dog.

$\exists x\, (C(x) \wedge D(x))$

$\forall x \forall y \exists z \, (x = y - z)$ D: $\mathbb{R}$

for every x real number, and for every real numbers y, there exists a real number z such that $x = y - z$

Show square of even number is even number

n is even $\rightarrow$ n^2 is even

n is even $\Rightarrow$

$n = 2k$

$n^2 = (2k)^2$

$= 4k^2$

$= 2(2k)$

$\therefore$ n is even $\Rightarrow$ n^2 is also even

Venn diagram

A, B --- set

$a_1, a_2, \ldots$ or $b_1, b_2 \ldots$ are elements.

$A \cap B$, $A \cup B$, $A - B$, $A \times B$

$A \cup \bar{A} = \mathcal{U}$ $A \cap \bar{A} = \emptyset$

$A \subseteq B$: If $x \in A$, then $x \in B$.

$A = \{1, 2, 3, 4, 5\}$

$B = \{6, 7, 8, 9\}$

$A \cap B = \emptyset$

$A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

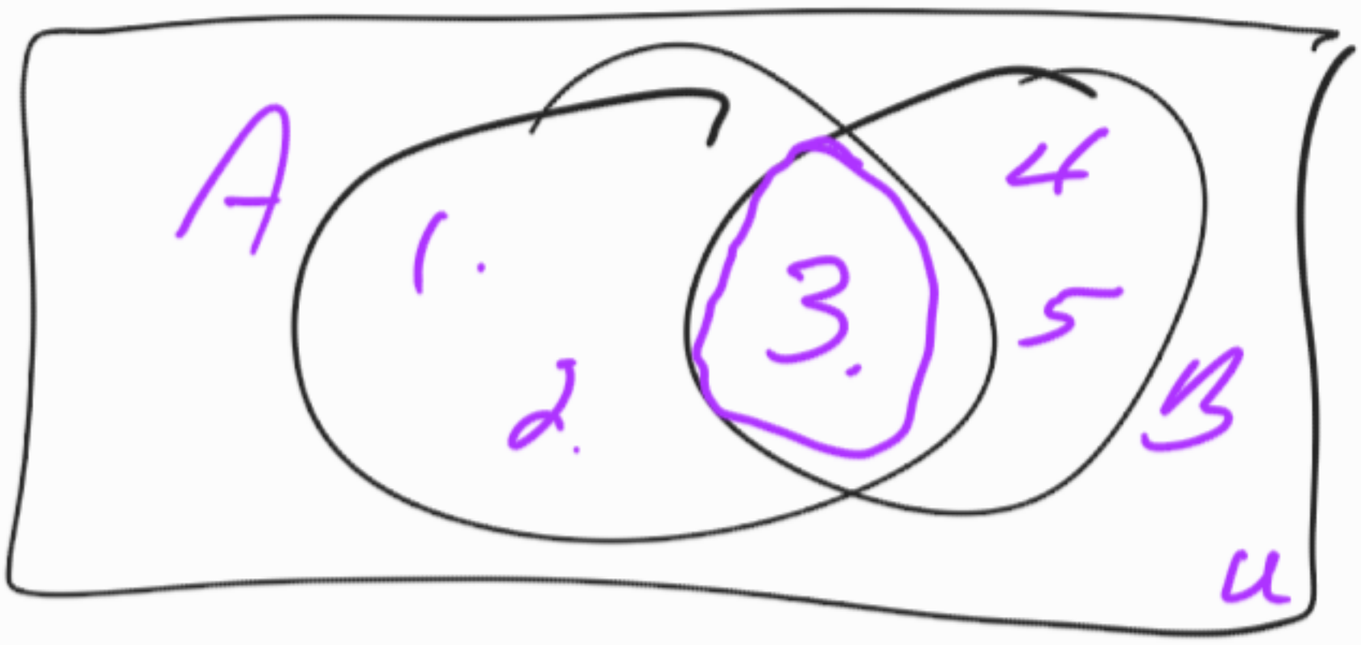
$A = \{1, 2, 3\}$

$B = \{3, 4, 5\}$

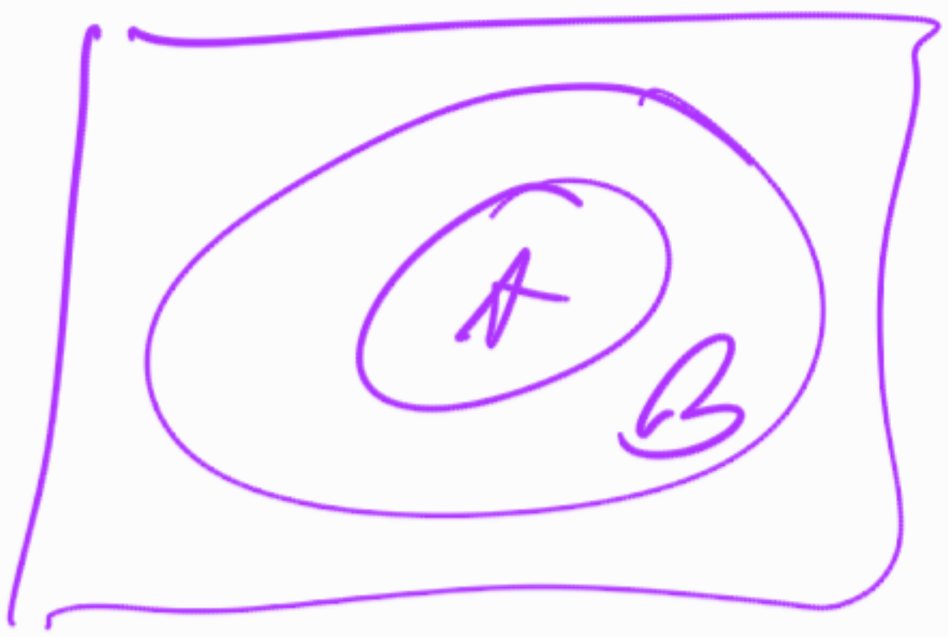
$A - B = \{1, 2\}$

$B - A = \{4, 5\}$

$A \times B = \{(1,3), (1,4), (1,5), (2,3), (2,4),$
$(2,5), (3,3), (3,4), (3,5)\}$



$C \cap \bar{A}$



$A \subseteq B$

You are not allowed to leave Teams

Done → type conversation
Done, # pages.
< 1 minute
take pictures (low resolution)
email (?)? pages

Wait

Thank U. —