Sets

Tomasz	

▲□▶ ▲□▶ ▲ □▶ ▲ □▶ □ つへで

In this presentation we will practice drawing diagrams for three sets.

i

Let's make some observations:

- $(A \cap B')$ is everything in A and not in B.
- *C* is of course everything in *C*.
- Finally we have U between these, so we want elements that are in at least one of the two sets.

3

Let's make some observations:

- $(A \cap B')$ is everything in A and not in B.
- C is of course everything in C.
- Finally we have U between these, so we want elements that are in at least one of the two sets.

Let's make some observations:

• $(A \cap B')$ is everything in A and not in B.

 Finally we have ∪ between these, so we want elements that are in at least one of the two sets.

Let's make some observations:

- $(A \cap B')$ is everything in A and not in B.
- C is of course everything in C.
- Finally we have U between these, so we want elements that are in at least one of the two sets.

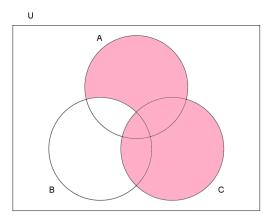
Let's make some observations:

- $(A \cap B')$ is everything in A and not in B.
- *C* is of course everything in *C*.
- Finally we have ∪ between these, so we want elements that are in at least one of the two sets.

A 12 N A 12 N

Example 1

Mark on the diagram the set corresponding to $(A \cap B') \cup C$. Answer:



3

・ロン ・四 ・ ・ ヨン ・ ヨン

Example 2

Mark on the diagram the set corresponding to $(A \cup B)' \cap C'$.

Let's make some observations:

- (A ∪ B)^r is everything outside of A and B. Using symbolic logic we could read this as: *it is not true that it is in A or in B*.
- C' is everything outside of C. In logic this is not in C.
- Finally we have ∩ between these, so we want elements that are in both sets. Using symbolic logic we have *it is not true that it is in A or in B* and *it is not in C*.

Let's make some observations:

- (A∪B)' is everything outside of A and B. Using symbolic logic we could read this as: it is not true that it is in A or in B.
 - C' is everything outside of C. In logic this is not in C.
- Finally we have ∩ between these, so we want elements that are in both sets. Using symbolic logic we have *it is not true that it is in A or in B* and *it is not in C*.

Let's make some observations:

• (A∪B)' is everything outside of A and B. Using symbolic logic we could read this as: *it is not true that it is in A or in B*.

C' is everything outside of C. In logic this is not in C.

Finally we have ∩ between these, so we want elements that are in both sets. Using symbolic logic we have it is not true that it is in A or in B and it is not in C.

Let's make some observations:

- (A∪B)' is everything outside of A and B. Using symbolic logic we could read this as: it is not true that it is in A or in B.
- C' is everything outside of C. In logic this is not in C.
- Finally we have ∩ between these, so we want elements that are in both sets. Using symbolic logic we have *it is not true that it is in A or in B* and *it is not in C*.

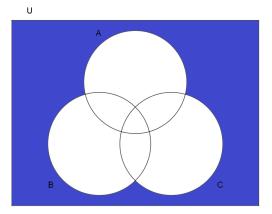
Let's make some observations:

- (A∪B)' is everything outside of A and B. Using symbolic logic we could read this as: it is not true that it is in A or in B.
- C' is everything outside of C. In logic this is not in C.
- Finally we have ∩ between these, so we want elements that are in both sets. Using symbolic logic we have *it is not true that it is in A or in B* and *it is not in C*.

- A TE N - A TE N

Example 2

Mark on the diagram the set corresponding to $(A \cup B)' \cap C'$. Answer:



Tomasz Lechowski

Maths Studies

3

イロト イヨト イヨト イヨト

Observations:

- $(A \cap B)$ is everything that is both in A and in B.
- C' is again everything outside of C.
- Finally we have ∪ between these, so we want elements that are in at least one of the two sets. Using logic we have *it is both in A and B* or *it is not in C*.

3

Observations:

- $(A \cap B)$ is everything that is both in A and in B.
 - C' is again everything outside of C.
 - Finally we have U between these, so we want elements that are in at least one of the two sets. Using logic we have *it is both in A and B* or *it is not in C*.

イロト イポト イヨト イヨト

Observations:

- $(A \cap B)$ is everything that is both in A and in B.
 - C' is again everything outside of C.

Finally we have U between these, so we want elements that are in at least one of the two sets. Using logic we have it is both in A and B or it is not in C.

イロト イポト イヨト イヨト

Observations:

- $(A \cap B)$ is everything that is both in A and in B.
- C' is again everything outside of C.
- Finally we have U between these, so we want elements that are in at least one of the two sets. Using logic we have *it is both in A and B* or *it is not in C*.

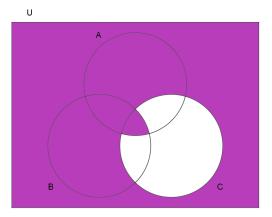
Observations:

- $(A \cap B)$ is everything that is both in A and in B.
- C' is again everything outside of C.
- Finally we have ∪ between these, so we want elements that are in at least one of the two sets. Using logic we have *it is both in A and B* or *it is not in C*.

* E • * E •

Example 3

Mark on the diagram the set corresponding to $(A \cap B) \cup C'$ Answer:



Lechows	

∃ ► < ∃ ►</p>

Image: A matrix

3

Let's make some observations:

- $(A \cup B)$ is everything in A or in B.
- $(C \cap A)$ is everything in C and in A.
- (A ∪ B) ∩ (C ∩ A) is everything in both of the above so in A or in B and in C and in A.

Let's make some observations:

- (A ∪ B) is everything in A or in B.
- $(C \cap A)$ is everything in C and in A.
- (A ∪ B) ∩ (C ∩ A) is everything in both of the above so in A or in B and in C and in A.

Let's make some observations:

• $(A \cup B)$ is everything in A or in B.

 (A∪B)∩(C∩A) is everything in both of the above so in A or in B and in C and in A.

Let's make some observations:

- $(A \cup B)$ is everything in A or in B.
- $(C \cap A)$ is everything in C and in A.

• $(A \cup B) \cap (C \cap A)$ is everything in both of the above so in A or in B and in C and in A.

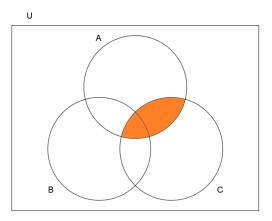
Let's make some observations:

- $(A \cup B)$ is everything in A or in B.
- $(C \cap A)$ is everything in C and in A.
- (A∪B)∩(C∩A) is everything in both of the above so in A or in B and in C and in A.

4 E N 4 E N

Example 4

Mark on the diagram the set corresponding to $(A \cup B) \cap (C \cap A)$. Answer:



	hows	

< A

3

Let's make some observations:

- $(A' \cap B')$ is everything that is both outside of A and outside of B.
- $(B \cup C)$ is everything in B or in C.
- (A' ∩ B') ∩ (B ∪ C) is everything in both of the above so not in A and not in B and in B or in C.

Let's make some observations:

- (A' ∩ B') is everything that is both outside of A and outside of B.
 (B ∪ C) is everything in B or in C.
 (A' ∩ B') ∩ (B ∪ C) is everything in both of the above so not in A a
 - not in B and in B or in C.

Let's make some observations:

• $(A' \cap B')$ is everything that is both outside of A and outside of B.

 (A' ∩ B') ∩ (B ∪ C) is everything in both of the above so not in A and not in B and in B or in C.

Let's make some observations:

- $(A' \cap B')$ is everything that is both outside of A and outside of B.
- $(B \cup C)$ is everything in B or in C.

 (A' ∩ B') ∩ (B ∪ C) is everything in both of the above so not in A and not in B and in B or in C.

イロト イポト イヨト イヨト

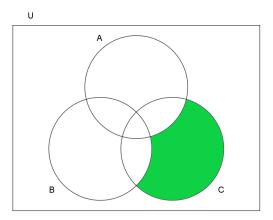
Let's make some observations:

- $(A' \cap B')$ is everything that is both outside of A and outside of B.
- $(B \cup C)$ is everything in B or in C.
- $(A' \cap B') \cap (B \cup C)$ is everything in both of the above so *not in* A and *not in* B **and** *in* B *or in* C.

4 E N 4 E N

Example 5

Mark on the diagram the set corresponding to $(A' \cap B') \cap (B \cup C)$. Answer:



Tomasz L	

< A

3