How to give a good talk?

Content Level, Organization and Boardwork

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Before we start ...

Goals

- Raise consciousness of importance of giving a good talk
- Initiate discussions on how to give good talks
- Share some perspective and techniques of giving talks

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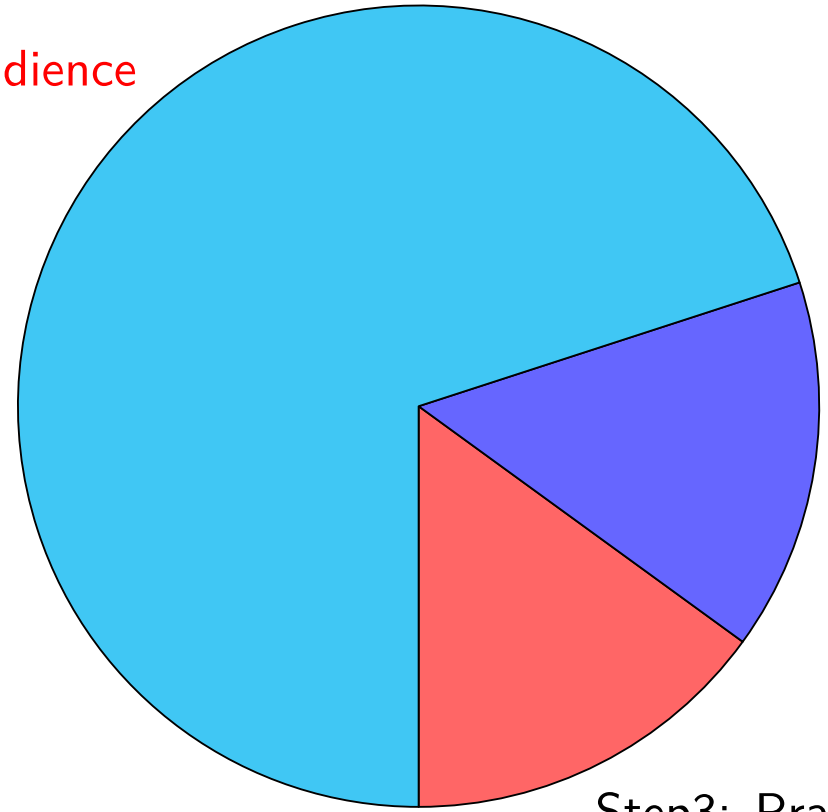
Applicable Scenarios

- Learning Seminars
- Research Seminars
- Colloquiums
- Lectures in Teaching

Talk preparation

Step1: Know your audience



Step2: Prepare for notes

Step3: Practice

Talk preparation

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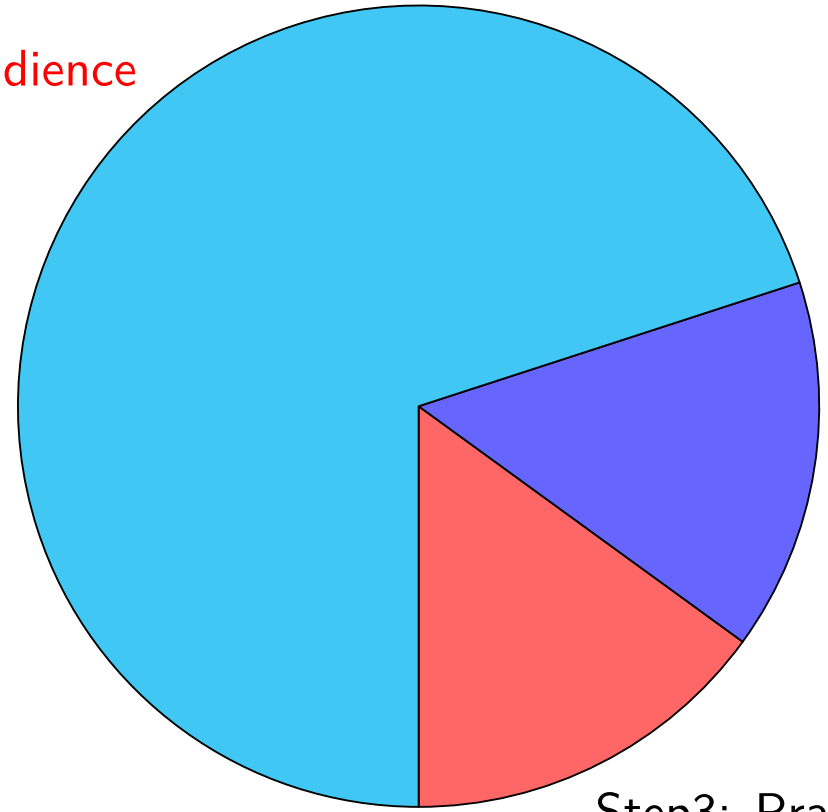
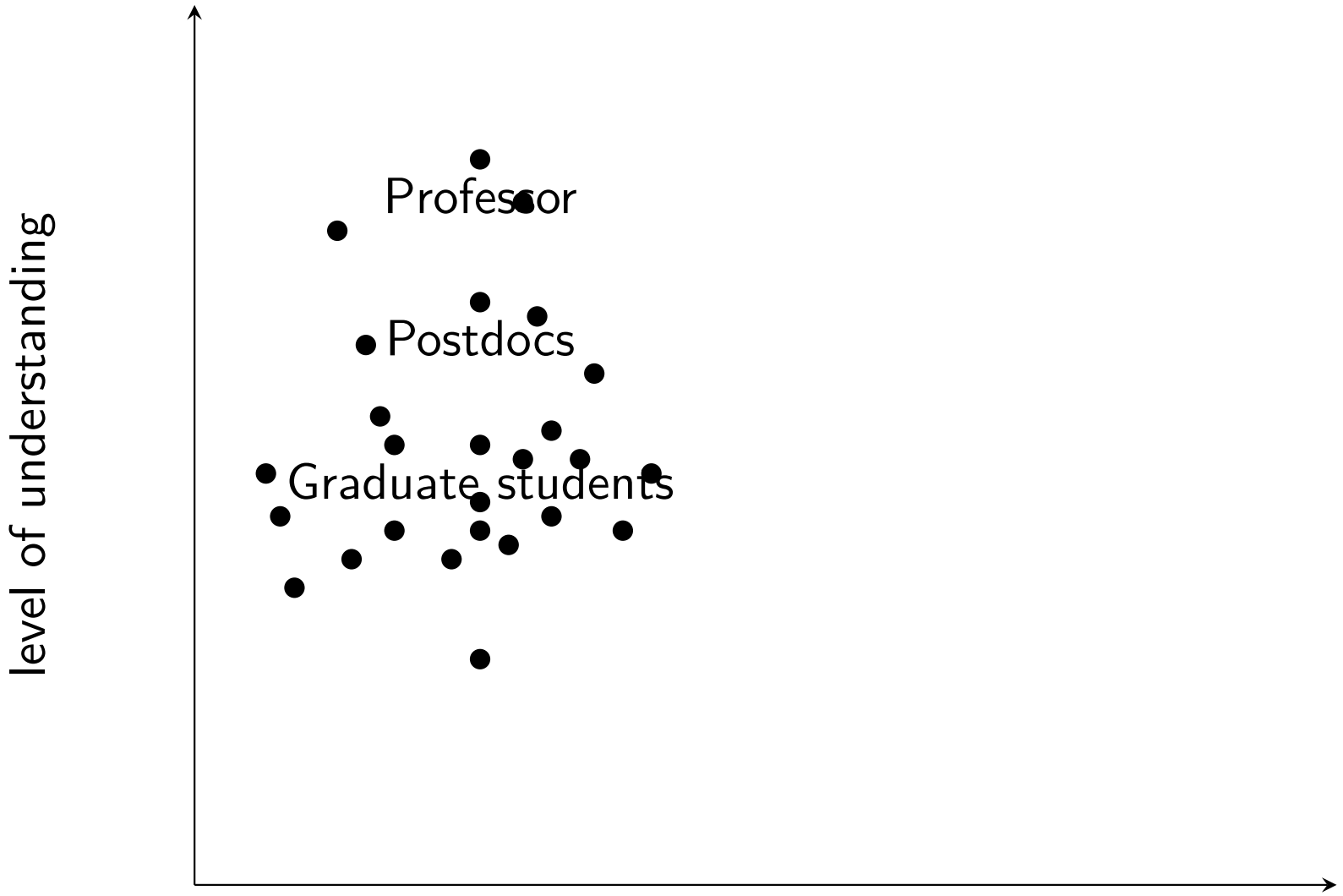


Step2: Prepare for notes

Step3: Practice

How much do you think about your audience when preparing talks?

Know your audience



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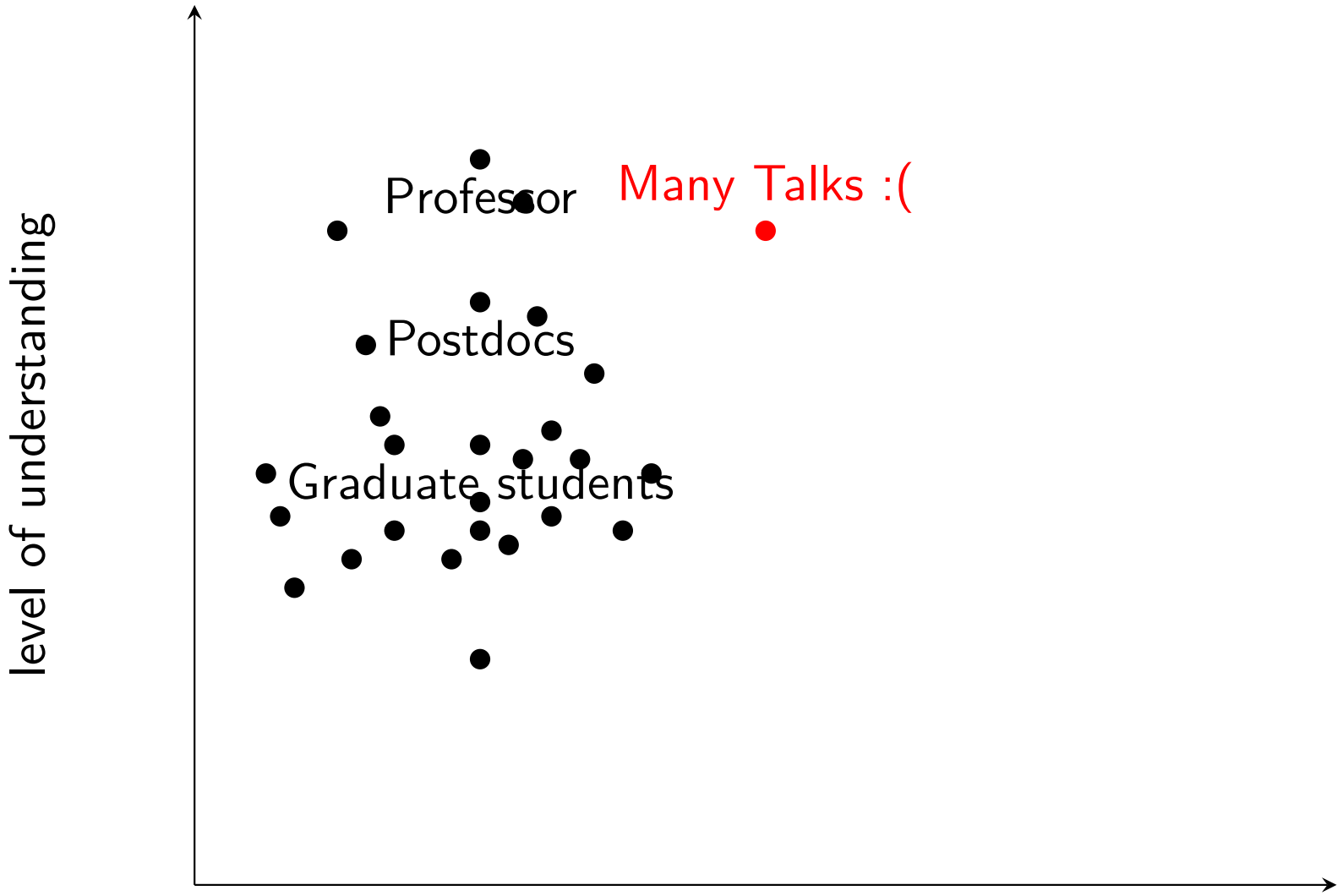

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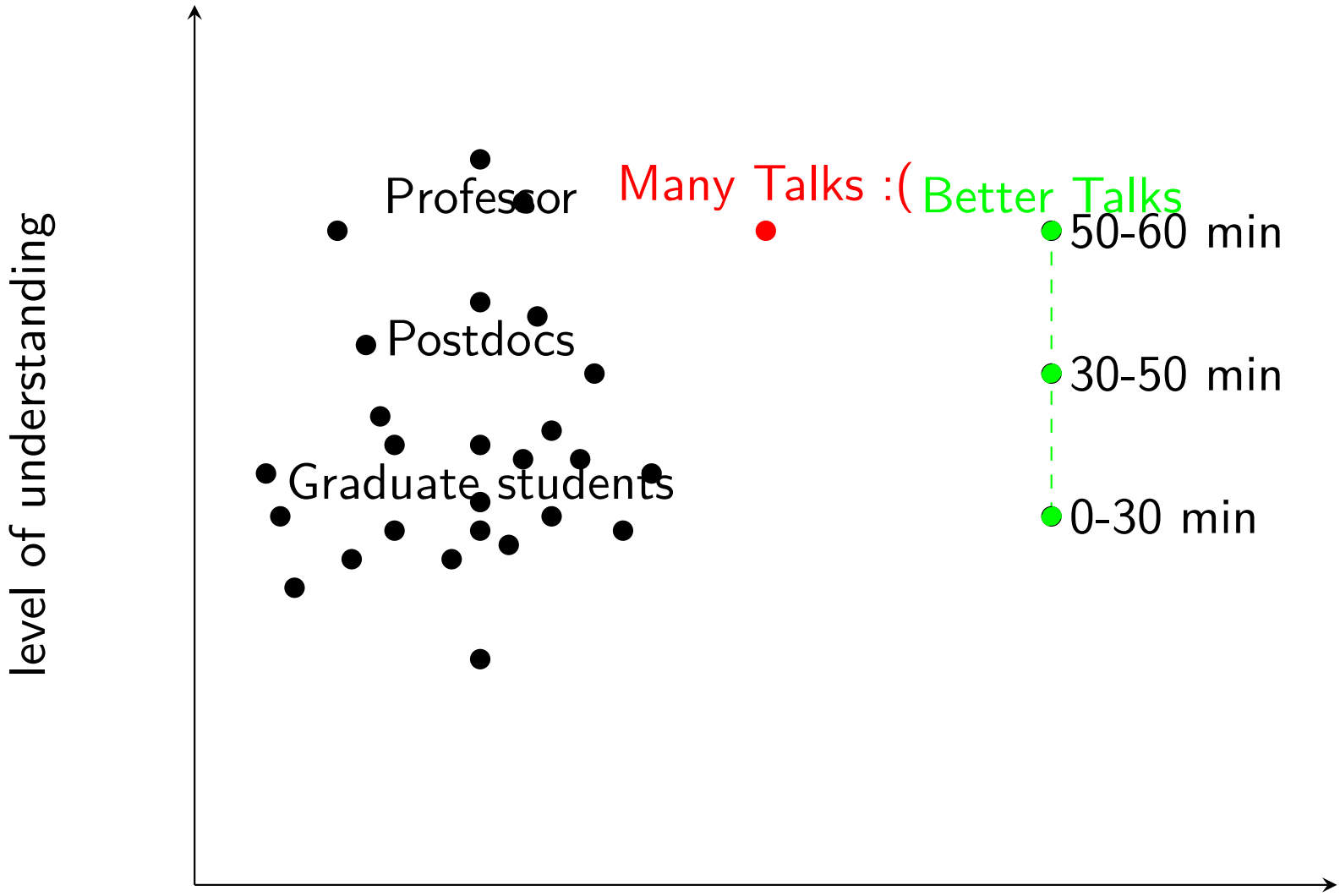

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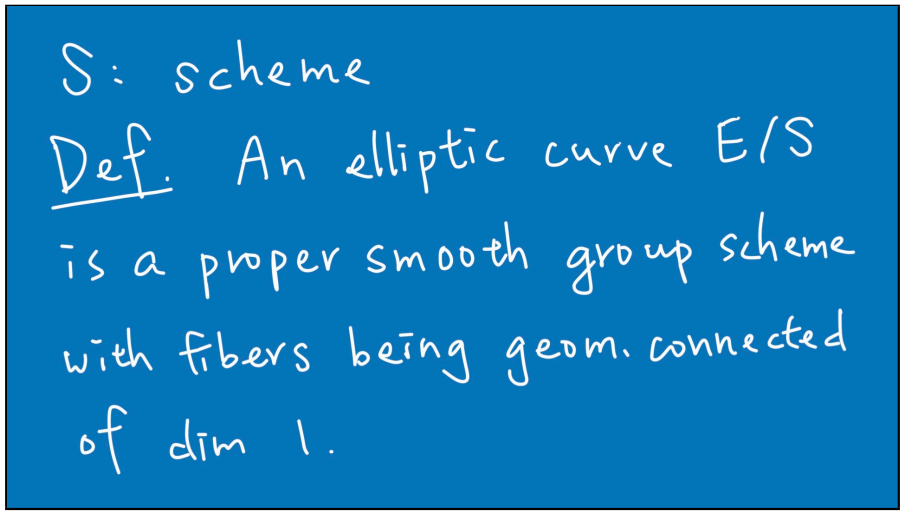

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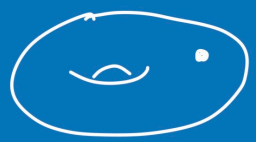
At the beginning of a colloquium about elliptic curves ...

S: scheme

Def. An elliptic curve E/S is a proper smooth group scheme with fibers being geom. connected of dim 1.

Over $\mathbb{C}$

elliptic curve = complex torus + a point



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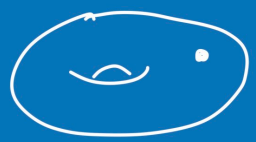

Elliptic curves

$E: y^2 = x^3 + ax + b$

with $4a^3 + 27b^2 \neq 0$

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Will focus on

- Organization
- Boardwork

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- Contents: Motivation, Background, Examples, Theorems, and Proofs.
- Flow: State the main theorem or goal as early as possible.
  - Theorem -> Ingredients of the proof -> Proof
    eg. Fermat's last theorem
  - Motivation -> Background -> Theorem -> Proof ideas
    eg. Technical theorems

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- Example: Example -> General Theory or General Theory -> Example

Organization — Example note

Let $E/\mathbb{C}$ be an elliptic curve. We say

E has CM if

$$\mathrm{End}_{\mathbb{Q}}(E) \neq \mathbb{Q},$$

where $\mathrm{End}_{\mathbb{Q}}(E) = \mathrm{End}(E) \otimes_{\mathbb{Z}} \mathbb{Q}$.

$E: y^2 = x^3 - x$

Prop. $\mathrm{End}_{\mathbb{Q}}(E)$ is imag. quad.

$E \cong \mathbb{C}/\mathbb{Z}\omega_1 \oplus \mathbb{Z}\omega_2$

$z := \frac{\omega_1}{\omega_2}$

$\vdots$

Organization — Better example note

Let $E/\mathbb{C}$ be an elliptic curve.

Let $\mathrm{End}(E)$ be the endomorphism ring of E.

Def. E has **complex multiplication (CM)** if $\mathrm{End}(E) \otimes \mathbb{Q} \neq \mathbb{Q}$

eg. $E: y^2 = x^3 - x$ has CM.

Prop. If E has CM, then $\mathrm{End}(E) \otimes \mathbb{Q}$ is imag. quad.

(pf.) Write $E \cong \mathbb{C}/\mathbb{Z}w_1 + \mathbb{Z}w_2$

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Organization — Example notes comparison

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Organization — More specifics about preparing notes

- “Key words” are easier to read than ”full sentence”.
- Avoid heavy notations
- Introduce notations one by one
- Use abbreviations only if it is well-known or after it is introduced
- “Arrows” are easier to follow than “where”

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- Use Board space linearly
  - Draw vertical lines to divide the board into suitable widths
  - Write from up to down, left to right
  - Align text to the left
  - Measure the board and decide where to write what beforehand (for extremely important talks)

How to improve?

Practice and Seek for feedback!