KeTCindyJS and KeTLMS

Various Applications in Mathmatics Classes

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Abstract

- We have created some examples of effective teaching materials for mathematics classes using KeTCindyJS and KeTLMS.
- KeTCindyJS allows anyone to easily create HTML containing interactive figures by linking the dynamic geometry software Cinderella and CindyJS.
- KeTLMS is an HTML app that enables students who are not familiar with TeX to easily exchange questions and answers, including mathematical formulas.
- As examples, we will show how to make the following HTML
 - 1. Gaussian elimination method
 - 2. Displaying the n-th root of a complex number
 - 3. SIR model of infectious diseases

- Now that the digitalization of education has progressed, ICT utilization and education using the Web are in demand.
- There is a need for inquiry-based online educational materials that allow students to actively solve problems on their own.

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We have created some examples of effective teaching materials for mathematics classes using KeTCindyJS and KeTLMS.

KeTCindy

- Support System for Creating Geometric Teaching Materials
 - Plug-in to create illustrations using dynamic geometry software Cinderella2
 - Developed by a group led by Setsuo Takato



Figure 1: KeTCindy (left: dynamic geometry screen, right: script editor screen)^{4/10}

KeTCindyJS

• A system that can create diagrams and graphs using KeTCindy libraries and generate them as HTML files



Figure 2: KeTCindyJS

Figure 3: HTML files

Information about KeTCindy

• KeTCindy Home (Official Site)

https://s-takato.github.io/ketcindyorg/indexe.html

• KeTCindy Web Docs

https://ketcindy-web-docs.vercel.app/

- Auto Installer
- Web Reference
- KeTCindy Chat

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Figure 4: Installer

Figure 5: Reference

Figure 6: Chat

KeTLMS

- System for exchanging assignments using KeTMath mathematical formulas
 - A series of processes from question creation, distribution, collection, grading, and return are possible.
 - Developed by a group led by Setsuo Takato

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Figure 7: Teacher side

Figure 8: Student side

Preparing to use KeTLMS

- See 「KetCindy HOME」 for how to use KeTLMS
 - What you prepare is the student's data, the question's data and embed data, if you want to include a figure.



Figure 9: What you need for KeTLMS

How to embed

- See 「KetCindy HOME」 for how to use KeTLMS
 - Set up using toolembed.cdy



Figure 10: toolembed.cdy

Let's try

- KeTLMS at ACTM2024 (by KUBO) https://kubo-yuge.github.io/atcm2024/
- KeTCindy at ACTM2024 (by SUZUKI) https://user.numazu-ct.ac.jp/ m-suzuki/ketcindy/atcm2024.html
- kame-els K12 for KeTLMS Worksop (by KAMEDA) https://k12.kame-els.com/







Figure 11: KUBO Figure 12: SUZUKI Figure 13: KAMEDA