KNOPPIX/Math: a live system for mathematics

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KNOPPIX

- CD/DVD bootable Linux
- Made by Klaus Knopper in Germany
- The set of Open Source Software(OSS)
  - We can study and change and redistribute source code of software.
  - Originary from the idea of Free Software.

The benefit of KNOPPIX

- We can use it on any PC
  - Microsoft Windows PC
  - Apple MacOS X Computer with Intel CPU.
- We do not need to install it.
- CD/DVD is stable.
- Same environments in anywhere.
- When you eject CD/DVD, it returns usual.
- You can copy and redistribute "network downloadable edition" freely.
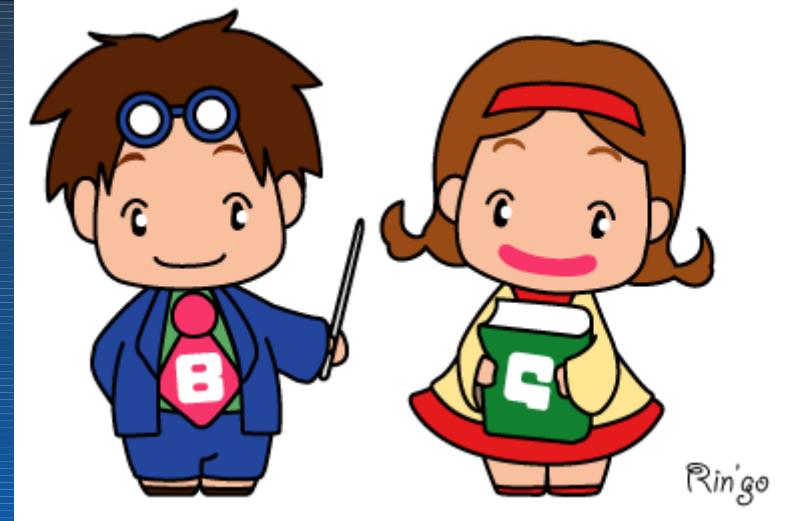
What is KNOPPIX/Math?

- Made by KNOPPIX/Math Project
- Over 100 pieces of math software is included.
- We have two editions, one is pressed, and the other is a network downloadable.

mathsoftware.org in ICM2006

- 2006.8.22 – 30 Madrid in Spain.

Supported by

- The JST CREST
  - JST is Japan Science and Technology agency
  - CREST is Core Research for Evolutional Science and Technology
  - "Harmony of Gröbner bases and the modern industrial society"
  - Team Leader : Takayuki Hibi (Osaka University)
    - Pure Mathematics Group
    - Applied Mathematics Group
    - Computational Mathematics Group
      - Group Leader : Nobuki Takayama(Kobe University)

mathsoftware.org in ICM2010

How to boot KNOPPIX/Math

- Windows PC
  1. Boot Windows
  2. Open the DVD drive
  3. Set KNOPPIX/Math DVD and close it.
  4. Reboot
- MacOS X with Intel CPU
  1. Boot Mac
  2. Set KNOPPIX/Math DVD
  3. Reboot
  4. Wait with pushing C key

Boot menu
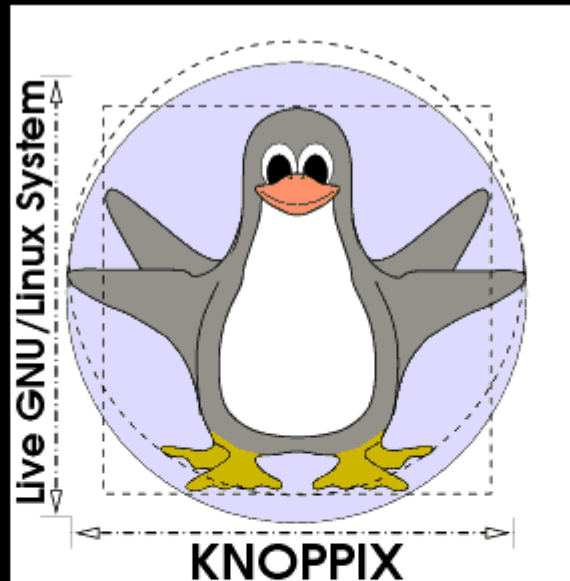
KNOPPIX is booting.

```
Welcome to Knoppix 6 based on MICROKNOPPIX!

Linux Kernel 2.6.31.6, 120 MB RAM.
CPU 0:   Pentium II (Klamath) @ 2393MHz, 2048 KB Cache
Knoppix 6 found at: /dev/sr0
>>> Starting in Live-Mode.                                    <<<
>>> Please do not remove medium until shutdown!              <<<
[    2.545267] cloop: Initializing cloop v2.631-opt
INIT: version 2.86 booting

[udev] [log]
System Setup...      ████████████████
Starting syslog daemon (console 12)...
_
```

3D-XplorMath-J	C.a.R.	CMCLab	CoCoA	CoqIDE Proof Assistant	DecimalBASIC	Dr.Geo
GAP	GEONExT	GNU TeXmacs Editor	GeoGebra	GeoProof	GiANT	Hyplane
JavaView	K3DSurf	KASH/KANT 3	KETpic-Scilab	KNOPPIX-Math-Start	KNOT	KSeg
Kan/SM1	KidsCindy	LiE	Macaulay2	MathDoc-Search	Maxima Algebra System	NZMATH
OpenDX Data Explorer	PARI/GP	Processing	QtOctave	R Commander	RKWard	Reduce
Risa/Asir	SAGE	Scilab	Scratch	Singular	SnapPea	Step

KNOPPIX-Math-Start

[Japanese]

KNOPPIX/Math

- KNOPPIX/Math (http://www.knoppix-math.org/)
- KNOPPIX/Math Documents

Mathematical software projects

1. 3D-XplorMath-J (http://3d-xplormath.org/j/)

   ○ Visualization and experimental tool for mathematics
   ○ 3D-XplorMath-J is a program for visualizing and experimenting with a variety of mathematical objects or "exhibits."
   ○ Commands

   ```
   3D-XplorMath-J
   ```

MathDoc-Search

- Full document search engine of Math Documents

Computer Algebra Systems

- Maxima
- Risa/Asir
- CoCoA
- Reduce
- Singular
- Macaulay2
- SAGE
- 4ti2, GAP, gfan, KANT, nzmath, PARI/GP, etc.

Numerical Computing

- Octave
- Yorick
- BLAS, LAPACK
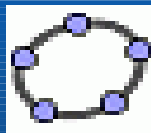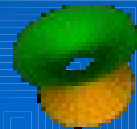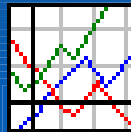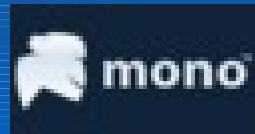- NumPy
- ...

Visualization Tools

- Geomview
- Gnuplot
- K3dSurf
- Javaview
- Yorick
- GeoGebra
- Surf, surfex, surfer
- Processing
- …

Programming Languages

- Fortran
- C, C++, C#(Mono)
- Java
- Prolog
- Perl, Python, Ruby
- Objective Caml
- Haskell...

VMware KNOPPIX/Math

- Kobe University
- http://www.math.kobe-u.ac.jp/vmkm/vmkm-en.html
- Search kewords with "Vmware and KNOPPIX/Math"

flash-knoppix

- making script for bootable USB flash drive
- It's very convenient, but please take care.