

Texemacs: integrazione dei sw matematici GNU-Linux con il tex

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1 Quali pacchetti

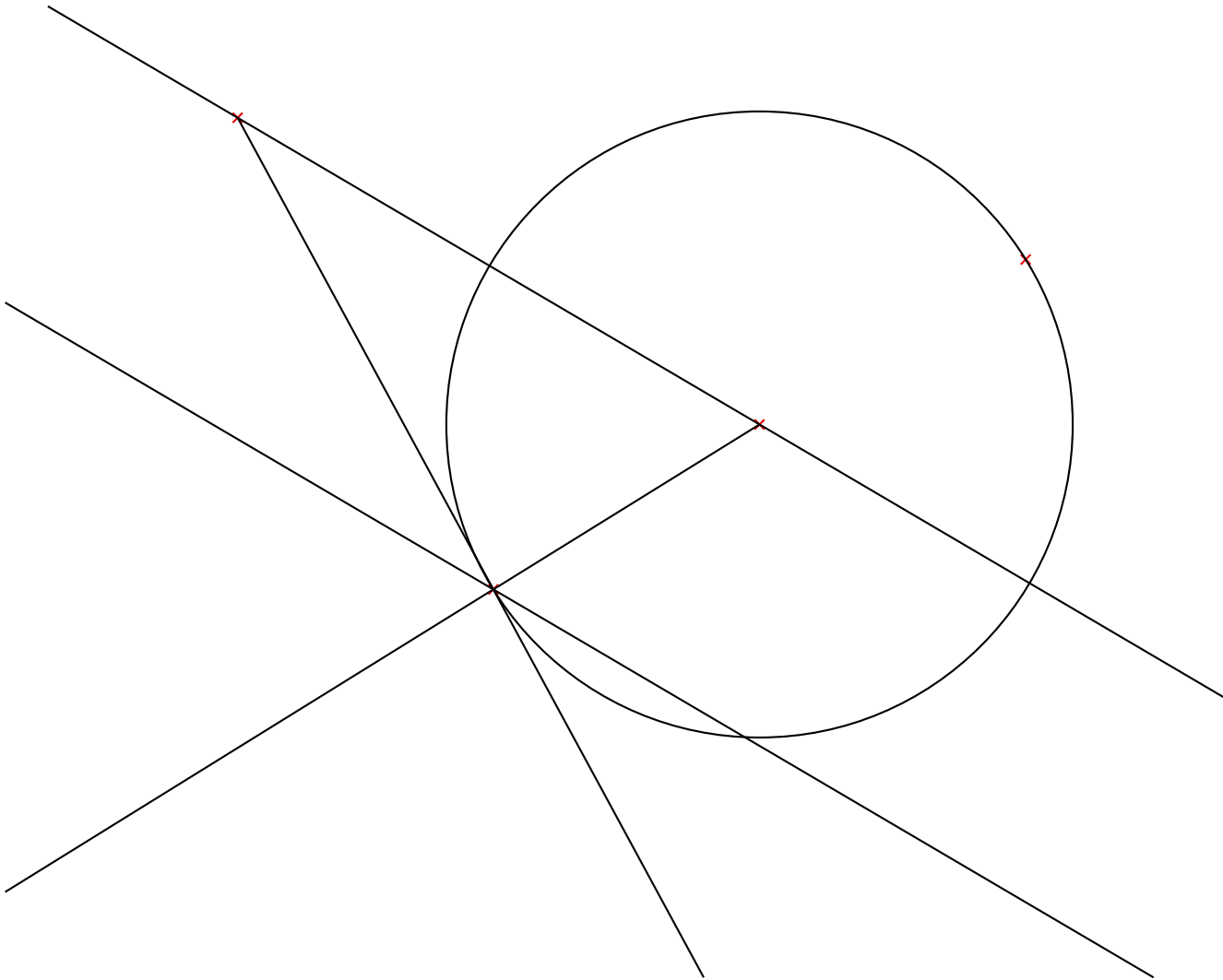
1.1 Scilab

personamnlmente non ricordo lo sviluppo di un polinomio ad una potenza ennesima...

$$a^2 + 2ba + b^2$$

$$a^3 + (3b + 9c)a^2 + (3b^2 + 18cb + 27c^2)a + (b^3 + 9cb^2 + 27c^2b + 27c^3)$$

1.2 DrGeo



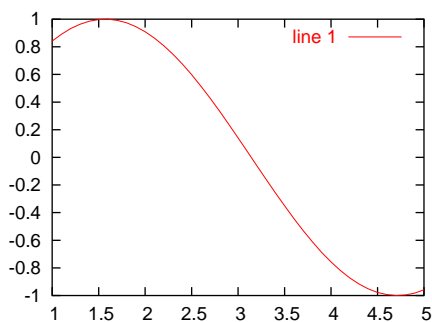
drgeo]

1.3 Octave

GNU Octave, version 2.1.51 (i386-pc-linux-gnu).
Copyright (C) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003 John W. Eaton.
This is free software; see the source code for copying conditions.
There is ABSOLUTELY NO WARRANTY; not even for MERCHANTABILITY or
FITNESS FOR A PARTICULAR PURPOSE.

Report bugs to <bug-octave@bevo.che.wisc.edu> (but first, please read
<http://www.octave.org/bugs.html> to learn how to write a helpful report).

```
octave> x=(1:.1:5);  
octave> y=sin(x);  
octave> plot(x,y)
```



```
octave> help rand
```

rand is the dynamically-linked function from the file
/usr/lib/octave/2.1.51/oct/i386-pc-linux-gnu/rand.oct

- Loadable Function: rand (X)
- Loadable Function: rand (N, M)
- Loadable Function: rand ("seed", X)

Return a matrix with random elements uniformly distributed on the interval (0, 1). The arguments are handled the same as the arguments for 'eye'. In addition, you can set the seed for the random number generator using the form

```
rand ("seed", X)
```

where X is a scalar value. If called as

```
rand ("seed")
```

'rand' returns the current value of the seed.

Additional help for built-in functions, operators, and variables is available in the on-line version of the manual. Use the command 'help -i <topic>' to search the manual index.

Help and information about Octave is also available on the WWW at <http://www.octave.org> and via the help-octave@bevo.che.wisc.edu mailing list.

1.4 R

```
library(TeXmacs,lib.loc="/usr/share/texmacs/TeXmacs/plugins/r/r/")
```

R : Copyright 2003, The R Foundation for Statistical Computing
Version 1.8.1 beta (2003-11-14), ISBN 3-900051-00-3

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for a HTML browser interface to help.
Type 'q()' to quit R.

```
>
```

```
> demo()
```

Demos in package 'base':

Hershey	Tables of the characters in the Hershey vector fonts
Japanese	Tables of the Japanese characters in the Hershey vector fonts
glm.vr	Some glm() examples from V&R with several predictors

graphics	A show of some of R's graphics capabilities
image	The image-like graphics builtins of R
is.things	Explore some properties of R objects and is.FOO() functions. Not for newbies!
lm.glm	Some linear and generalized linear modelling examples from 'An Introduction to Statistical Modelling' by Annette Dobson
nlm	Nonlinear least-squares using nlm()
persp	Extended persp() examples
plotmath	Examples of the use of mathematics annotation
recursion	Using recursion for adaptive integration
scoping	An illustration of lexical scoping.

Demos in package 'TeXmacs':

T.graphics	A show of some of R's graphics capabilities (TeXmacs version)
T.Hershey	Tables of the characters in the Hershey vector fonts (TeXmacs version)
T.image	The image-like graphics builtins of R (TeXmacs version)
T.Japanese	Tables of the Japanese characters in the Hershey vector fonts (TeXmacs version)
T.lm.glm	Some linear and generalized linear modelling examples from 'An Introduction to Statistical Modelling' by Annette Dobson (TeXmacs version)
T.nlm	Nonlinear least-squares using nlm() (TeXmacs version)
T.persp	Extended persp() examples (TeXmacs version)
T.plotmath	Examples of the use of mathematics annotation (TeXmacs version)
T.recursion	Using recursion for adaptive integration (TeXmacs version)

Use 'demo(package = .packages(all.available = TRUE))'
to list the demos in all *available* packages.

```
> demo(T.image)
```

```
demo(T.image)
---- ~~~~~
```

Type <Return> to start :

```
> if (dev.cur() <= 1) get(getOption("device"))()
```

```
> data(volcano)
```

```
> x <- 10 * (1:nrow(volcano))
```

```

> x.at <- seq(100, 800, by = 100)

> y <- 10 * (1:ncol(volcano))

> y.at <- seq(100, 600, by = 100)

> image(x, y, volcano, col = terrain.colors(100), axes = FALSE)

> contour(x, y, volcano, levels = seq(90, 200, by = 5),
  add = TRUE, col = "brown")

> axis(1, at = x.at)

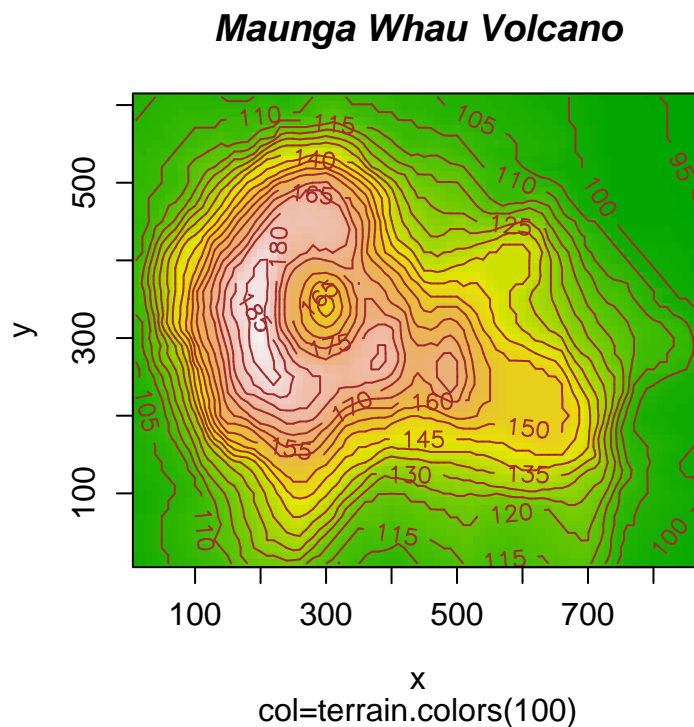
> axis(2, at = y.at)

> box()

> title(main = "Maunga Whau Volcano", sub = "col=terrain.colors(100)",
  font.main = 4)

> v()

```



```

> image(x, y, volcano, col = heat.colors(100), axes = FALSE)

```

```

> contour(x, y, volcano, levels = seq(90, 200, by = 5),
  add = TRUE, col = "brown")

> axis(1, at = x.at)

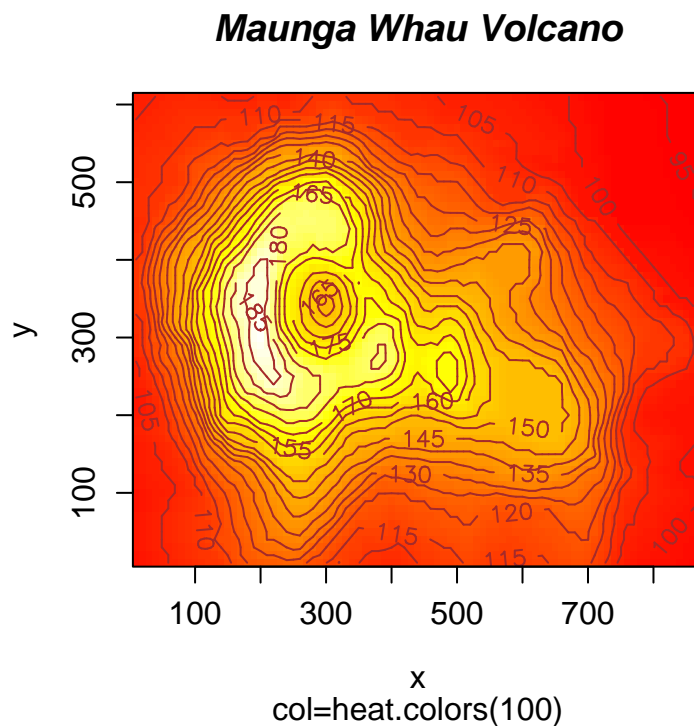
> axis(2, at = y.at)

> box()

> title(main = "Maunga Whau Volcano", sub = "col=heat.colors(100)",
  font.main = 4)

> v()

```



```

> image(x, y, volcano, col = gray(100:200/200), axes = FALSE)

> contour(x, y, volcano, levels = seq(90, 200, by = 5),
  add = TRUE, col = "black")

> axis(1, at = x.at)

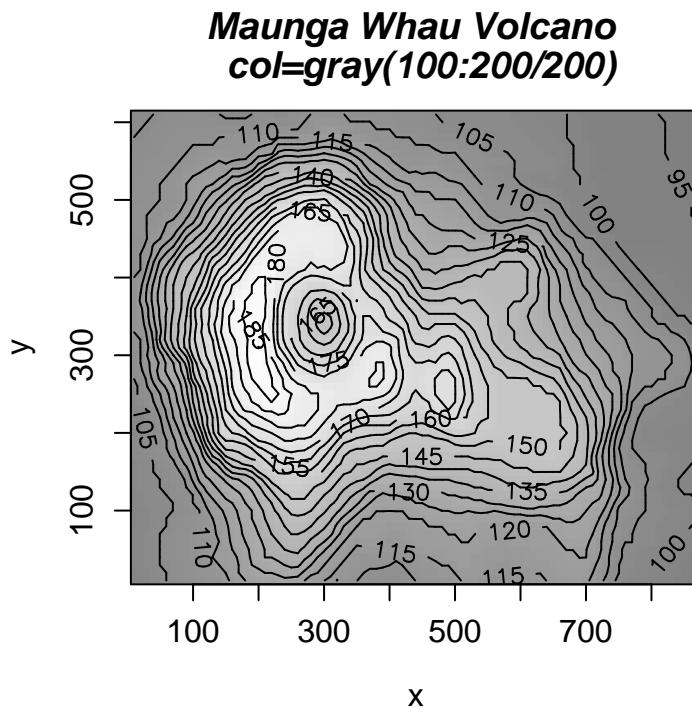
> axis(2, at = y.at)

> box()

> title(main = "Maunga Whau Volcano \n col=gray(100:200/200)",
  font.main = 4)

> v()

```



```
> example(filled.contour)

flld.c> data(volcano)

flld.c> filled.contour(volcano, color = terrain.colors, asp = 1)

flld.c> x <- 10 * 1:nrow(volcano)

flld.c> y <- 10 * 1:ncol(volcano)

flld.c> filled.contour(x, y, volcano, color = terrain.colors,
  plot.title = title(main = "The Topography of Maunga Whau",
    xlab = "Meters North", ylab = "Meters West"), plot.axes = {
    axis(1, seq(100, 800, by = 100))
    axis(2, seq(10 .... [TRUNCATED])

flld.c> mtext(paste("filled.contour(.) from", R.version.string),
  side = 1, line = 4, adj = 1, cex = 0.66)

flld.c> a <- expand.grid(1:20, 1:20)

flld.c> b <- matrix(a[, 1] + a[, 2], 20)

flld.c> filled.contour(x = 1:20, y = 1:20, z = b, plot.axes = {
  axis(1)
```



```

        axis(2)
        points(10, 10)
    })

flld.c> x <- y <- seq(-4 * pi, 4 * pi, len = 27)

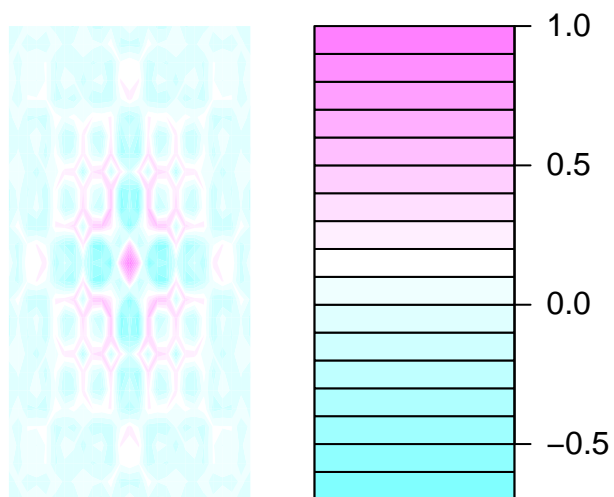
flld.c> r <- sqrt(outer(x^2, y^2, "+"))

flld.c> filled.contour(cos(r^2) * exp(-r/(2 * pi))), axes = FALSE)

flld.c> filled.contour(cos(r^2) * exp(-r/(2 * pi))), frame.plot = FALSE,
        plot.axes = {
        })

> v()

```



>

1.5 shell

Shell session inside TeXmacs

```
shell] ls
```

```

BackUp_20031113.tar.gz
Desktop
docs
etc.tar.gz
evolution
figure.ps
gdesklets

```

```
giochi.iso
GNUstep
Grafica
Immagini
linux1.html
linux1.pdf
linux1.ps
linux1.tex
linux1.xml
linux2.pdf
linux2.ps
linuxday1
linuxday1.tm
linuxday2.html
linuxday2.tex
linuxday2.tm
linuxday2.tm~
linuxday2.xml
Maildir
octave-core
OpenOffice.iso
personal
pocketpc
stixx_linuxday.iso
sync-multisync_plugin-0.8.2-1.i386.rpm
sync-multisync_plugin-0.8.2.tar.gz
testSw
vmw
WIP
wireless centrino
work
```

```
shell] id
```

```
uid=1001(samuele) gid=1002(samuele)
gruppi=1002(samuele),111(scanner),1003(cdrecording)
```

```
shell] mc
```

```
subshell.c: couldn't get terminal settings: Invalid argument
```

```
Shell session inside TeXmacs
```

```
shell] uptime
```

```
10:15:26 up 1:36, 3 users, load average: 0.03, 0.13, 0.18
```

```
shell] df -lh
```

Filesystem	Dimens.	Usati	Disp.	Uso%	Montato su
/dev/hda7	9,8G	4,1G	5,7G	42%	/
/dev/hda8	24G	22G	2,5G	90%	/home

```
shell]
```

2 ...mai chiedere ad un ingegnere...

...quanto fa

$$1 + 1$$

potrebbe rispondere così:

$$1 = 0!$$

$$1 = \cos(0)$$

$$\Gamma(n+1) = n!$$

$$\Gamma(0+1) = 0! = 1$$

$$\Gamma(1) + \cos(0) =$$

$$\sqrt{1 - \sin^2(x)} = \cos(x)$$

$$\sum_{x=0}^{\infty} \left(\frac{1}{x}\right) = 2$$

$$\sqrt{1 - \sin^2(0)} + \Gamma(1) = \sum_{x=0}^{\infty} \left(\frac{1}{x}\right) = 2$$