

# GNU Plot notes

**Try these programs at Gnuplot which can be downloaded on laptops and mobiles using play store.**

# What is gnuplot?

- Command driven plotting Program
- Used to plot functions as well as data points from text file
- 2D and 3D plots can be made
- Free to use

# How to use?

- Open terminal
- Type gnuplot
- Write commands to plot

# Few frequently used gnuplot commands

## To set / unset range of x-axis, y-axis

- set xrange[a:b]
- set yrange[c:d]
- unset xrange
- unset yrange

## To put label and title on a plot

- set xlabel "x-axis"
- set ylabel "y-axis"
- set title "Title of the Graph"

## To plot a function directly in gnuplot

First Define function

- $f(x) = x^3$
- plot f(x)

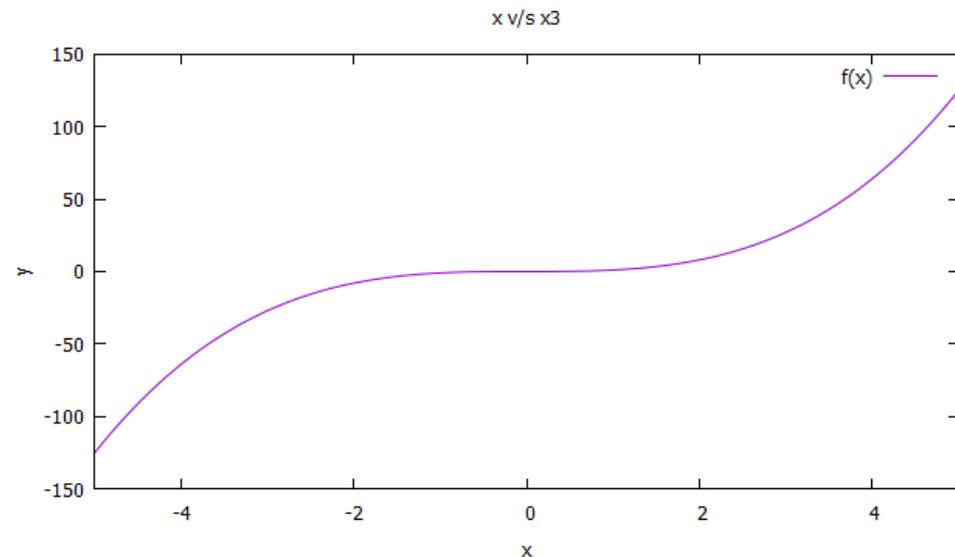
OR (for inbuilt functions)

- Plot sin(x)

## Example:

To plot  $x^3$  v/s  $x$  with  $x$  in range -5 to 5, xlabel: x and ylabel: y cube with title of the graph x v/s  $x^3$

```
gnuplot> set xrange [-5:5]
gnuplot> set xlabel "x"
gnuplot> set ylabel "y"
gnuplot> set title "x v/s x3"
gnuplot> f(x)=x**3
gnuplot> plot f(x)
```



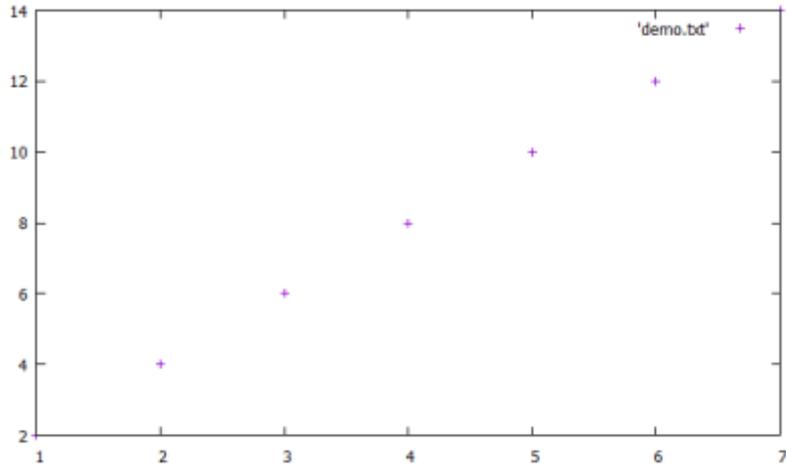
gnuplot

Demo - Notepad

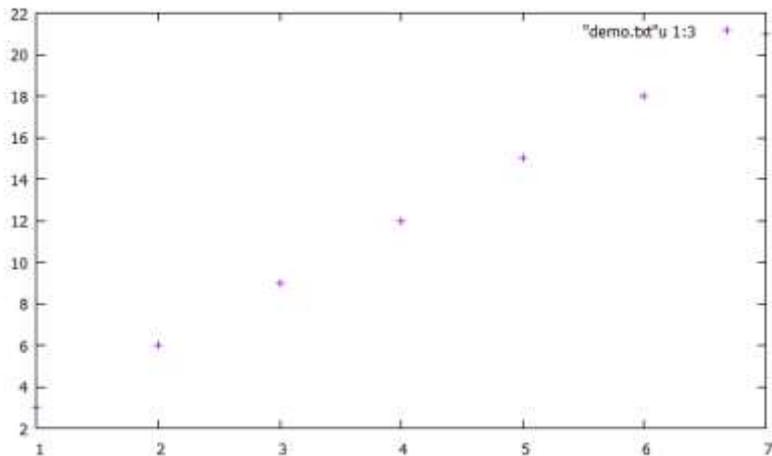
File	Edit	Format	View	Help
1		2	3	
2		4	6	
3		6	9	
4		8	12	
5		10	15	
6		12	18	
7		14	21	

## To plot from a data file (demo.txt)

➤ plot "demo.txt" (plot default, i.e. col1-vs-col2)

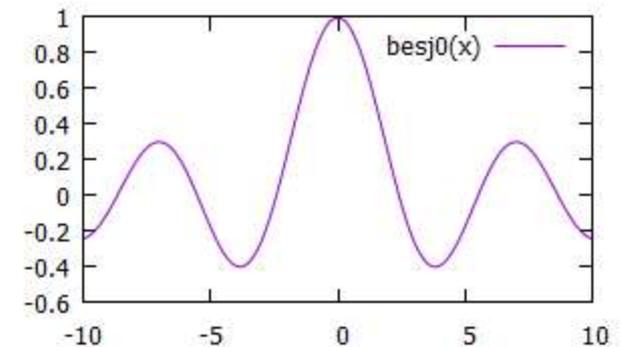
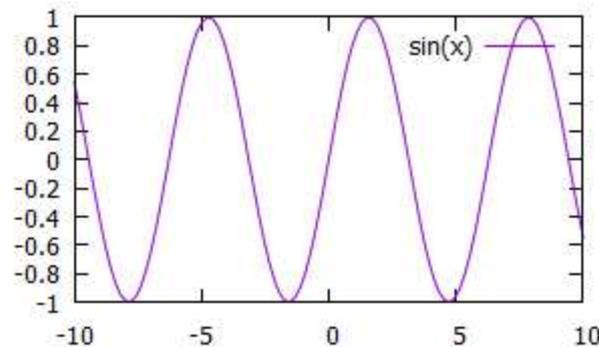
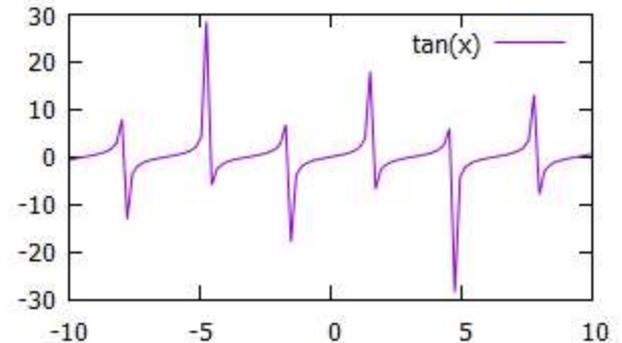
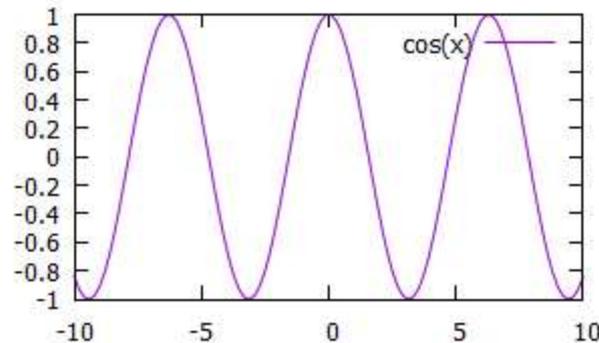


➤ plot "demo.txt" u 1:3



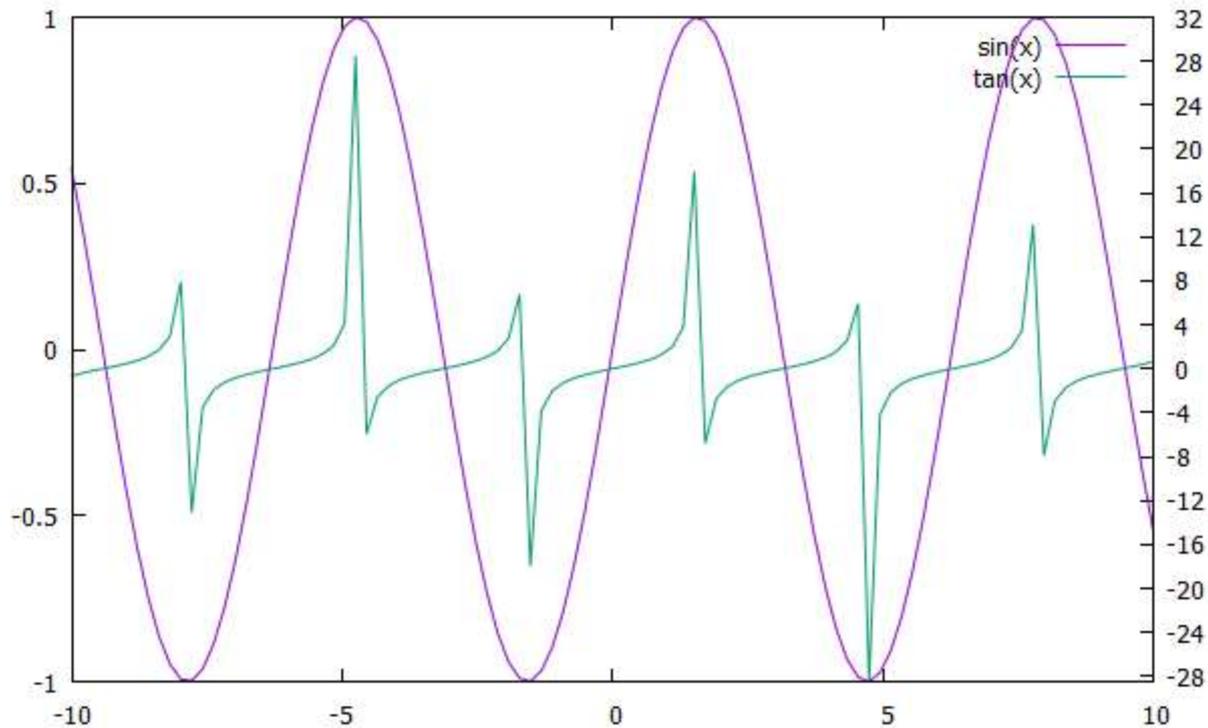
# multiplot: to place several plots on the same page

- set multiplot
- set size 0.5,0.5
- set origin 0,0
- plot sin(x)
- set origin 0,0.5
- plot cos(x)
- set origin 0.5,0.5
- plot tan(x)
- set origin 0.5,0
- plot besj0(x)



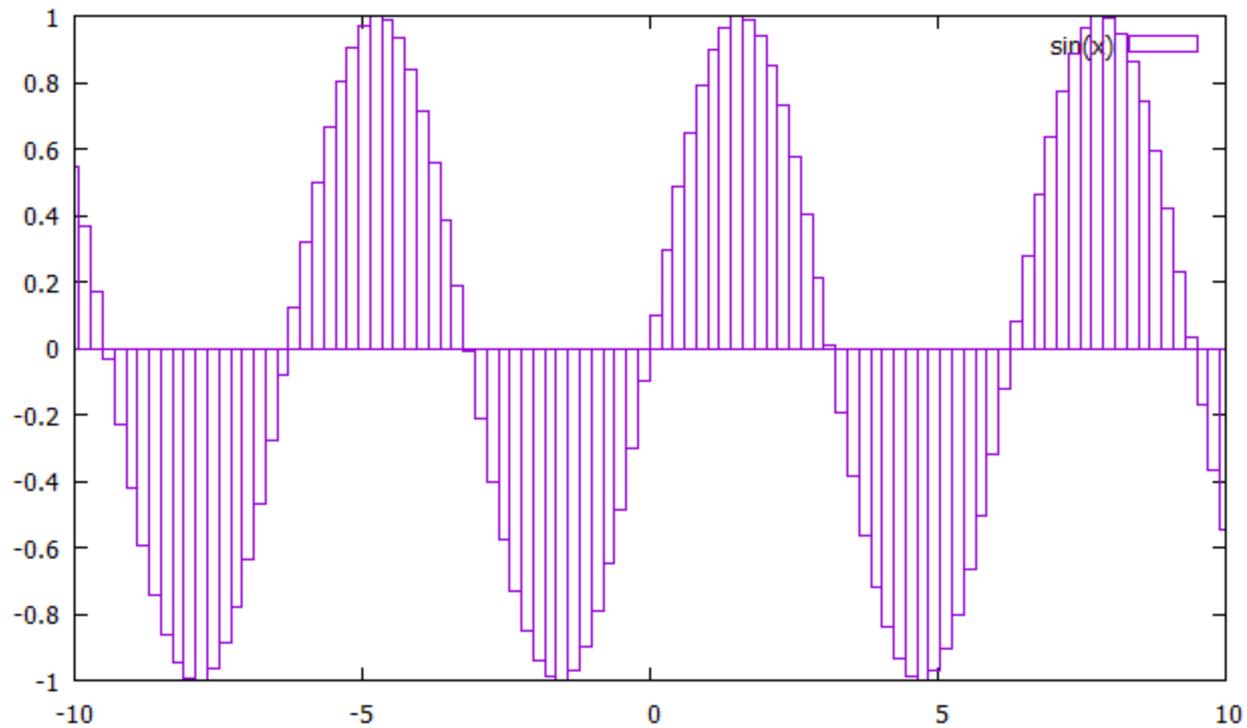
# Using two different y axis

- `set ytics nomirror`
- Set `y2tics -40,4`
- Plot `sin(x)` axis `x1y1`, `tan(x)` axis `x1y2`



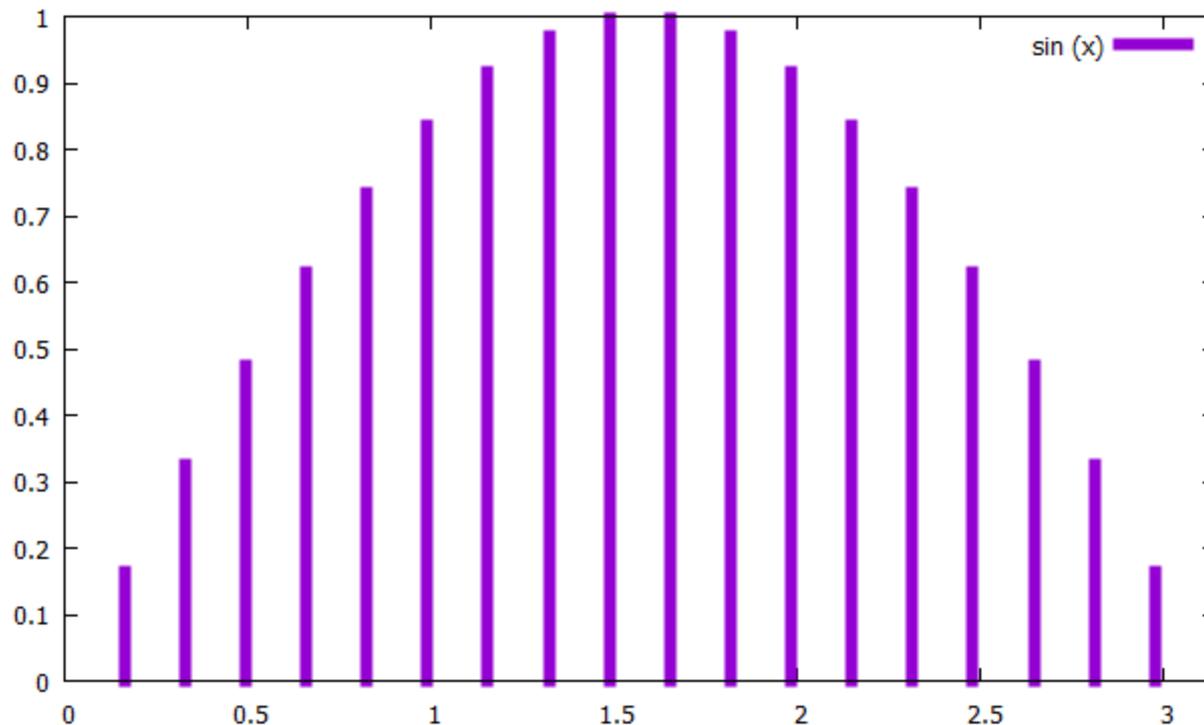
# Plotting with boxes

➤ Plot  $\sin(x)$  with boxes



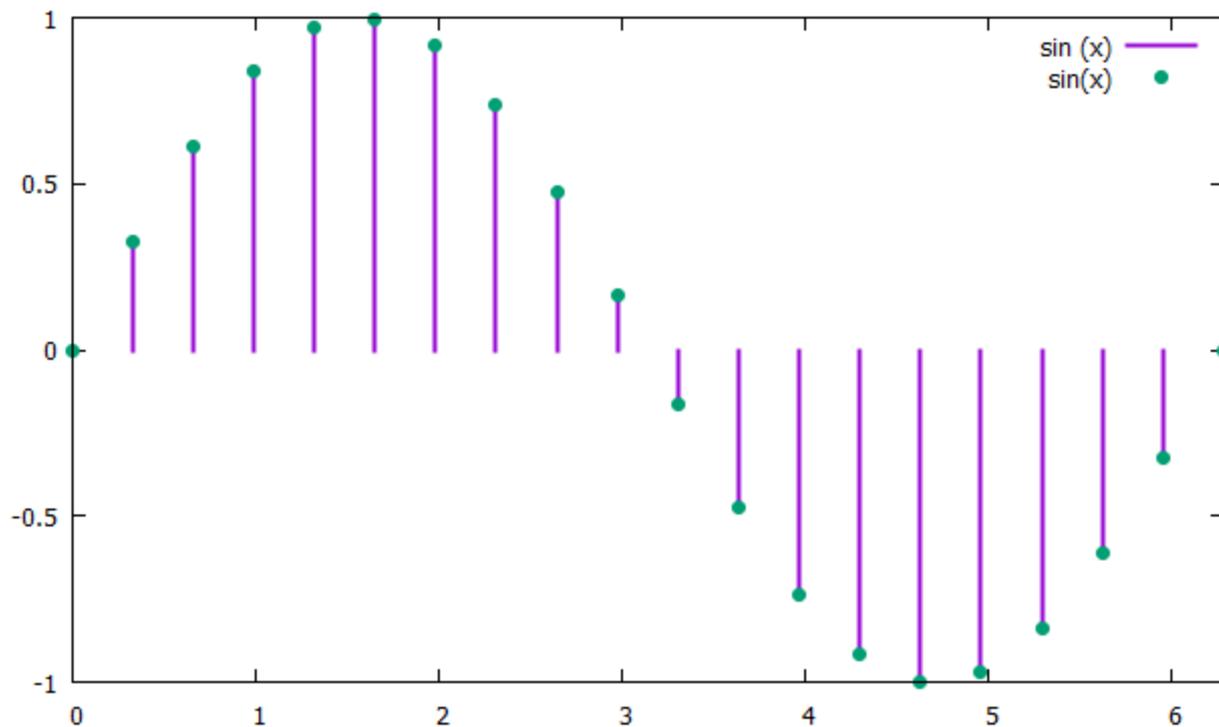
# Plotting $\sin x$ in range 0 to $\pi$ with 20 impulses of line width 6

- Set samples 20
- Plot  $[0:\pi] \sin(x)$  with impulses lw 6



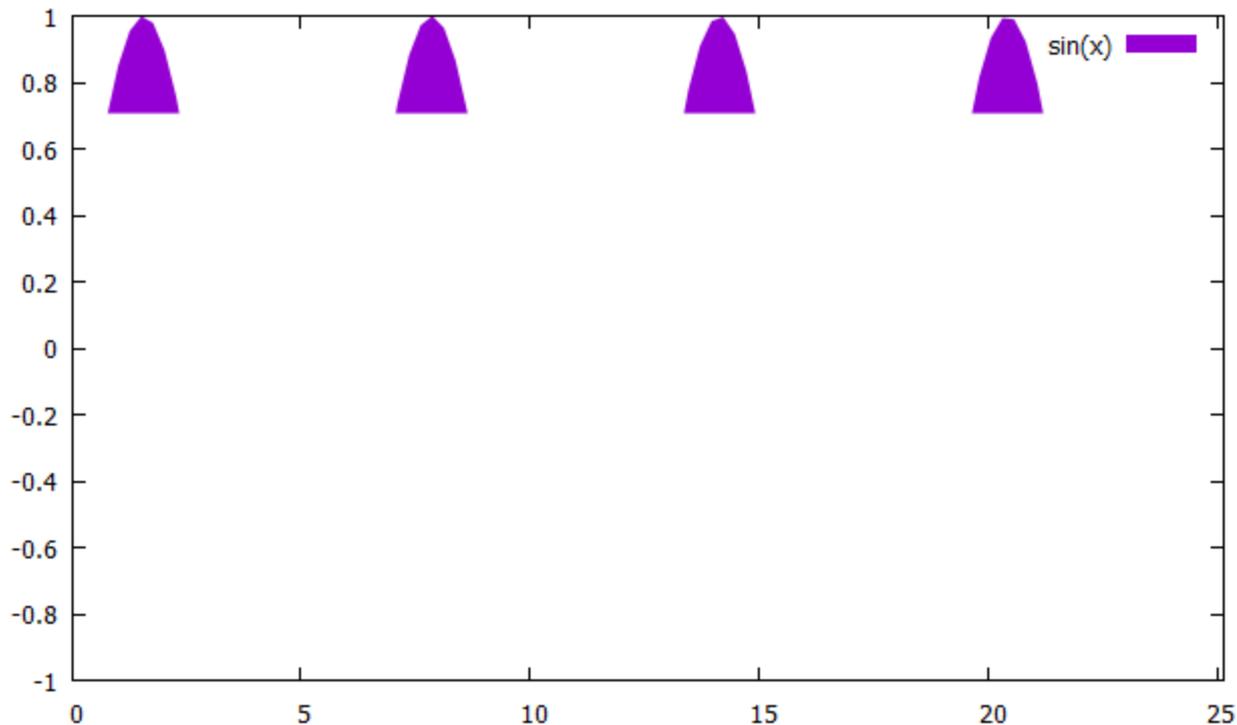
# Plotting $\sin x$ in range 0 to $2\pi$ with 20 impulses of line width 2 and circles at edges

- Set samples 20
- Plot  $[0:\pi]$   $\sin(x)$  with impulses lw 2,  $\sin(x)$  with points pt 7



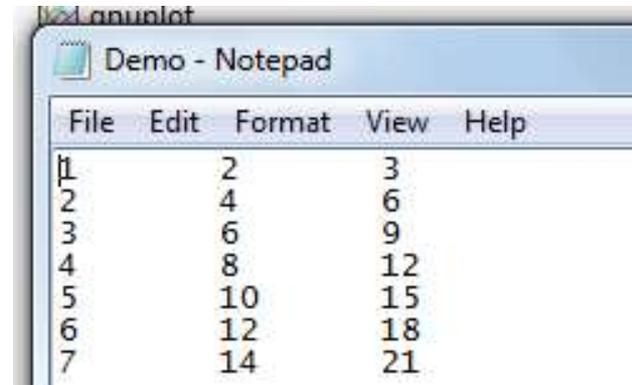
Highlighting some part above reference line  
(to highlight above 0.707 in 0 to  $8 * \pi \sin(x)$  graph

➤ Plot  $[0:8*\pi] \sin(x)$  with filledcurves above  $y=0.707$



# To make histograms

➤ Plot 'demo.txt' with histsteps



The screenshot shows a Notepad window with the following data:

File	Edit	Format	View	Help
1		2	3	
2		4	6	
3		6	9	
4		8	12	
5		10	15	
6		12	18	
7		14	21	

