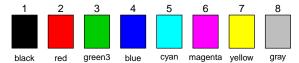
## **Plotting**

```
## Basic plots
plot(x, y)
hist(x)
barplot(table(x))
boxplot(x)
stem(x)
pie(x)
pairs(matrix) #Scatterplots
coplot() # conditional plot
stripplot() # strip plot
qqplot() # quantile-quantile plot
qqnorm()
qqline()
         # fit normal distribution
## Standard plotting arguments
xlab = "x-axis label" #See also ylab
xlim = c(0, 10) #x axis range
main = "Main title"
sub = "sub title"
```

**Graphical parameters** 

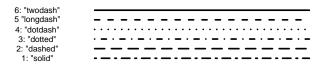
These are set globally with par(...); many can be passed as parameters to plotting commands.

- adj controls text justification: 0 left-justified, 0.5 centred, 1 right-justified.
- bg specifies the background colour, e.g. bg="red" or bg="blue". See colors() for a list of the 657 available colours.
- bty controls the type of box drawn around the plot, allowed values are: "o", "1", "7", "c", "u" or "]" (the box looks like the corresponding character). If bty="n" the box is not drawn
- cex a value controlling the size of texts and symbols with respect to the default. Related options are: cex.axis, cex.lab, cex.main and cex.sub.
- col controls the color of symbols and lines. Use color names: "red", "blue" (see colors() or numbers.



See also rgb(), hsv(), gray(), and rainbow(); as for cex there are: col.axis, col.lab, col.main and col.sub

- font: an integer which controls the style of text (1: normal, 2: italics, 3:bold, 4: bold italics); as for cex there are: font.axis, font.lab, font.main and font.sub
- las: an integer which controls the orientation of the axis labels (0: parallel to the axes, 1: horizontal, 2: perpendicular to the axes, 3: vertical)
- lty controls the type of lines. The value can be an integer or string



Alternatively, a string of up to eight characters (between "0" and "9") which specifies alternatively the length, in points or pixels, of the drawn elements and the blanks, for example lty="44" will have the same effect than lty=2

- lwd a numeric which controls the width of lines, default 1 mar a vector of 4 numeric values which control the space between the axes and the border of the graph of the form c(bottom, left, top, right), the default values are c(5.1, 4.1, 4.1, 2.1)
- mfcol a vector of the form c(nr,nc) which partitions the graphic window as a matrix of nr lines and nc columns, the plots are then drawn in columns
- mfrow as mfcol, but the plots are drawn by row
- pch controls the type of symbol, either an integer between 1 and 25, or any single character within

- ps an integer which controls the size in points of texts and symbols
- pty a character which specifies the type of the plotting region, "s": square, "m": maximal
- tck a value which specifies the length of tickmarks on the axes as a fraction of the smallest of the width or height of the plot; if tck=1 a grid is drawn
- tcl a value which specifies the length of tickmarks on the axes as a fraction of the height of a line of text (by default tcl=-0.5)
- xaxt if xaxt="n" the x-axis is set but not drawn (useful in conjonction with axis(side=1, ...))
- yaxt if yaxt="n" the y-axis is set but not drawn (useful in conjonction with axis(side=2, ...))