Cheatography

R graphical Cheat Sheet

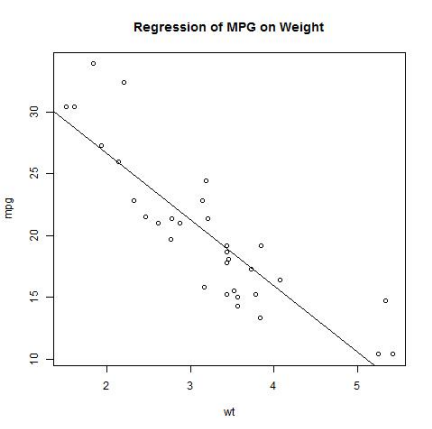
by xeonkai via cheatography.com/31513/cs/9603/

Basic code

```
pdf("mygraph.pdf")
    att ach (mt cars)
    plo t(wt, mpg)
    abl ine (lm(mpg ~ wt))
    tit le( " Reg ression of MPG
on Weight ")
    det ach (mt cars)
   x <- c(1:10)
   y <- x
    lin es(x, y, type="b ",
pch=22, col="bl ue", lty=2)
dev.off()
```

Variations include win.metafile(), png(), jpeg(), bmp(), tiff(), xfig(), postscript()
Other functions include dev.new(), dev.next(), dev.prev(), dev.set()

Basic graph



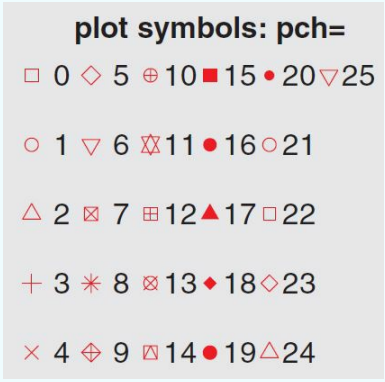
Graphical parameters

```
par(op tio nna me= value, option nam
opar <- par(no.re ado nly =TRUE)
par(lty=2, pch=17)
plot(dose, drugA, type="b ")
# type - " b": both points and lines, " l": lines, " p": points, " c": lines part of " b", " n": no plotting
l ott ed"
par(opar)
```

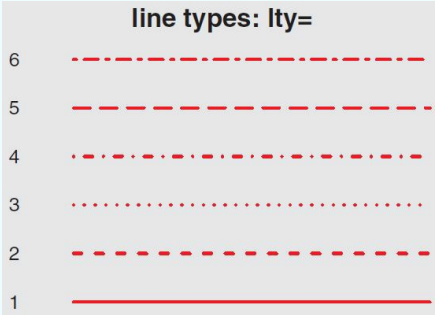
Symbols and lines

pch	Specifies the symbol to use when plotting points
cex	Specifies the symbol size. A number indicating the amount plotting symbols are scaled relative to default. 1=default, 1.5 is 50% larger, 0.5 is 50% smaller, and so forth.
lty	Specifies the line type
lwd	Specifies the line width. Expressed relative to default (=1), e.g. lwd=2 - a line twice as wide as the default

Plot symbols



Line types



Color parameters

col	Default plotting color. Some functions (e.g. lines and pie) accept a vector of values that are recycled.
col.axis	Color for axis text
col.lab	Color for axis labels
col.main	Color for titles
col.sub	Color for subtitles
fg	The plot's foreground color
bg	The plot's background color
rainbow(#)	Produces # contiguous "rainbow" colors
gray(0 :10/10)	Specify gray levels as a vector of numbers between 0 and 1. This produces 10 gray levels.

Text parameters

cex	Number indicating the amount by which plotted text should be scaled relative to the default
cex.axis	Magnification of axis text relative to cex
cex.lab	Magnification of axis labels relative to cex
cex.main	Magnification of titles relative to cex
cex.sub	Magnification of subtitles relative to cex

Font parameters

font	Integer specifying font to use for plotted text. 1=plain, 2=bold, 3 =italic, 4=bold italic, 5=symbol (Adobe symbol encoding)

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Font parameters (cont)

font.axis	Font for axis text
font.lab	Font for axis labels
font.main	Font for titles
font.sub	Font for subtitles
ps	Font point size (roughly 1/72 inch). The text size = ps*cex.
family	Font family for drawing text. Standard values are serif, sans, and mono.

Mapping for font family created via windowsFont() function.
For Mac, use quartzFonts().

```
window sFonts(
A=wind ows Fon t("Arial Black"),
B=wind ows Fon t("B ookman Old S tyle"),
C=wind ows Fon t("Comic Sans MS" )
)
```

Graph and margin parameters

pin	Plot dimensions (width, height) in inches
mai	Numerical vector indicating margin size, c(bottom,left,top,right). Expressed in inches
mar	Numerical vector indicating margin size, c(bottom,left,top,right). Expressed in lines. The default is c(5,4,4,2) + 0.1.

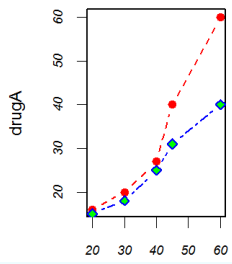
Example code

```
dose <- c(20,30,40,45,60)
drugA <- c(16,2 0,2 7,4 0,60)
drugB <- c(15,1 8,2 5,3 1,40)
opar <- par(no.re ado nly =TRUE)
```

Example code (cont)

```
> par(pin=c(2,3))
par(lwd=2, cex=1.5)
par(cex.axis=.75, font.axis=3)
plot(dose, drugA, type="b", pch=19, lty=2, col="red")
lines(dose, drugB, type="b", pch=23, lty=6, col="blue", bg="green")
par(opar)
```

Resulting graph



Graph text and customization

ann=FALSE	Using in plot() statement or par() statement remove default titles and labels
title()	title(mai n="main title", col.ma in= " red ", sub="su b-t i ", cex.la b=0.75)

Graph text and customization (cont)

axis()	Create custom axes. When cr option axes=FALSE (suppres me.p lo t=TRUE), xaxt="r
text()	Add text within graph, typicall oca tion, " tex t", po
mtext()	Add text to margin of plot
	e.g. mtext(" tex t", si bl ue")
plotmath()	Add mathematical symbols ar
abline()	Add reference lines to graph e
	abline (h= c(1 ,5,7) ac

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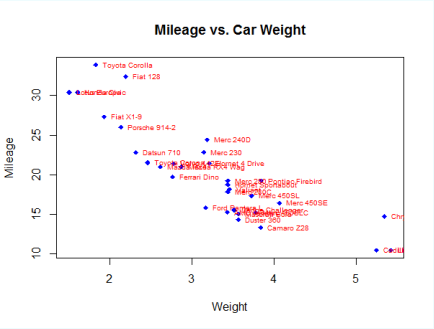
Graph text and customization (cont)

```
legend (lo cation, title, legend, ..
.)
```

Example code

```
attach(mtcars)
plot(wt, mpg, main="M ileage vs.
Car Weight ", xlab="W eig ht",
ylab="M ile age ", pch=18,
col="bl ue")
text(wt, mpg, row.na mes (mt -
cars), cex=0.6, pos=4, col="re -
d")
detach (mt cars)
```

Resulting graph



Combining graphs

Used in `par()` or `layout()` function:

`mf, mfrow=c(nr, nc)` - fill by row

`mfcol=c(nr, nc)` - fill by column

`layout (mat)`

where `mat` is matrix object specifying location of multiple plots to combine

e.g. `layout (ma tri x(c (1, 1,2,3), 2, 2, byrow = TRUE))`

- one figure placed in row 1 and two figures placed in row 2

Optional parameters for `layout()`:

`widths()` - a vector of values for widths of columns

`heights()` - a vector of values for heights of rows

e.g. `layout (ma tri x(c(1, 1, 2, 3), 2, 2, byrow = TRUE), widths =c(3, 1)`
`(1, 2))`

Used in `par()` function:

`fig=c(x1, x2, y1, y2), new = TRUE` - Plot within limits of (x1,x2) and (y1,y2). `new = T`
figure to existing graph

Axis options

`side`	An integer indicating the side of the graph to draw the axis (1=bottom, 2=left, 3=top, 4=right)
`at`	A numeric vector indicating where tick marks should be drawn
`labels`	A character vector of labels to be placed at the tick marks (if `NULL`, the `at` values will be used)
`pos`	The coordinate at which the axis line is to be drawn (i.e. the value on the other axis where it crosses)
`lty`	Line type

Axis options (cont)

`col.bottom, bottom.left, left, tople`	The line and tick mark color
`las`	Labels are parallel (=0) or perpendicular (=2) to the axis
`tck`	Length of tick mark as a fraction of the plotting region (a '-' number is outside the graph, a '+' number is inside, 0 suppresses ticks, 1 creates gridlines). Default is -0.01.

Adding minor tick marks require Hmisc package.

```
librar y(H misc)
minor.t ic k(nx=n, ny=n, tick.r -
atio=n)
```

where nx, ny are no. of intervals to divide major tick marks on x- and y-axis, tick.ratio is size of minor relative to major tick mark

demo(plotmath)

Arithmetic Operators		Radicals	
x + y	x + y	sqrt(x)	$\sqrt{x}$
x − y	x − y	sqrt(x, y)	$\sqrt[y]{x}$
x * y	xy	Relations	
x/y	x/y	x == y	x = y
x %+−% y	x ± y	x != y	x ↑ y
x%/%y	x √ y	x < y	x < y
x %*% y	x × y	x <= y	x ″ y
x %.% y	x · y	x > y	x > y
−x	− x	x >= y	x ≥ y
+x	+ x	x %~~% y	x ⊕ y
Sub/Superscripts		x %=~% y	x ≅ y
x[i]	x_i	x %==% y	x ≡ y
x^2	x^2	x %prop% y	x ∝ y
Juxtaposition		Typeface	
x * y	xy	plain(x)	x
paste(x, y, z)	xyz	italic(x)	*x*
Lists		bold(x)	**x**
list(x, y, z)	x, y, z	bolditalic(x)	***x***
		underline(x)	x

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