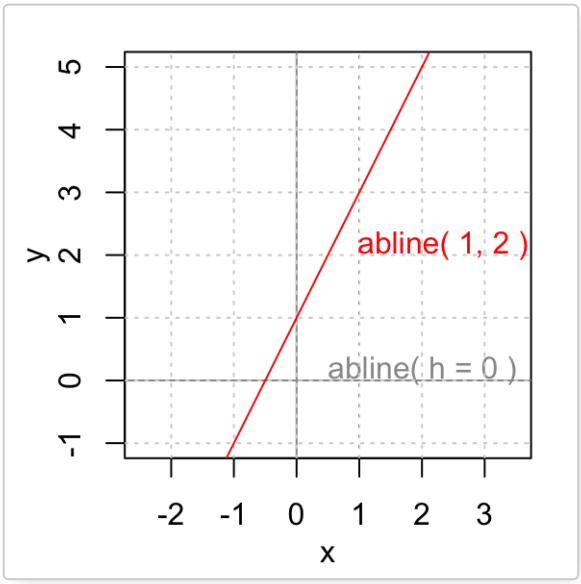
abline R function : An easy way to add straight lines to a plot using R software

The aim of this tutorial is to show you how to add one or more **straight lines** to a **graph** using **R statistical software**. The R function **abline()** can be used to add **vertical**, **horizontal** or **regression lines** to a graph.



A simplified format of the **abline()** function is :

```
abline(a=NULL, b=NULL, h=NULL, v=NULL, ...)
```

- **a, b** : single values specifying the **intercept** and the **slope** of the line
- **h** : the **y-value(s)** for horizontal line(s)
- **v** : the **x-value(s)** for vertical line(s)

Add a vertical line

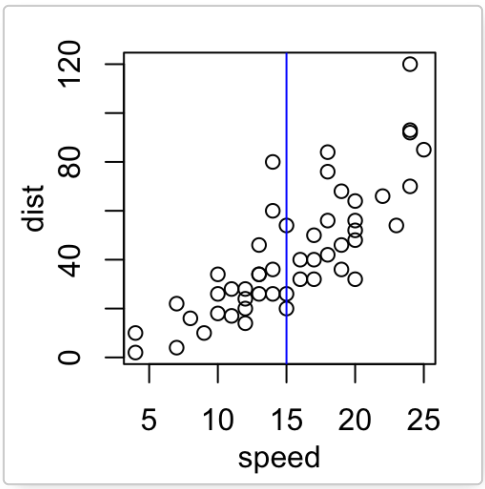
The simplified format is :

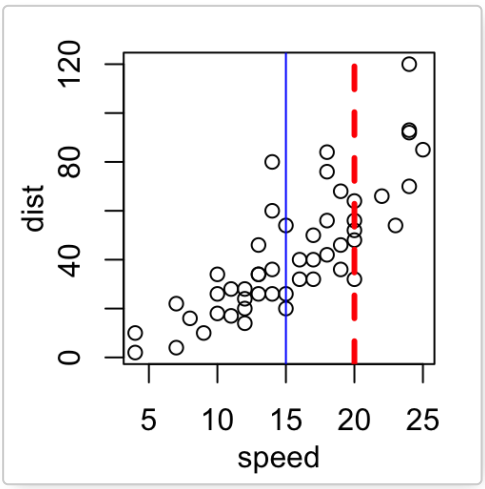
```
abline(v = y)
```

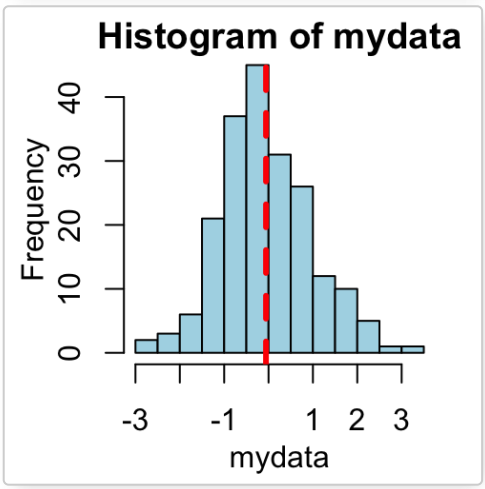
It draws a vertical line on the current plot at the specified 'y' coordinates.

```
# first example : Add one line
plot(cars)
abline(v=15, col="blue")
# second example : add 2 lines
# change line colors, sizes and types
plot(cars)
abline(v=c(15,20), col=c("blue", "red"), lty=c(1,2), lwd=c(1, 3))
# third example
set.seed(1234); mydata<-rnorm(200)
```

```
hist(mydata, col="lightblue")
abline(v = mean(mydata), col="red", lwd=3, lty=2)
```







Note that, **line types** (`lty`) and **line width** (`lwd`) are explained here.

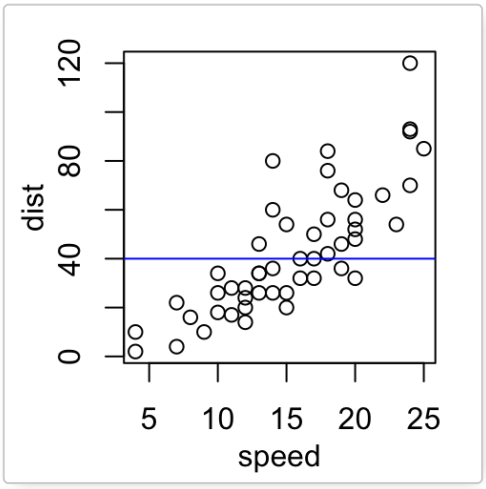
Add an horizontal line

The simplified format is :

```
abline(h = x)
```

It draws an horizontal line on the current plot at the specified 'x' coordinates.

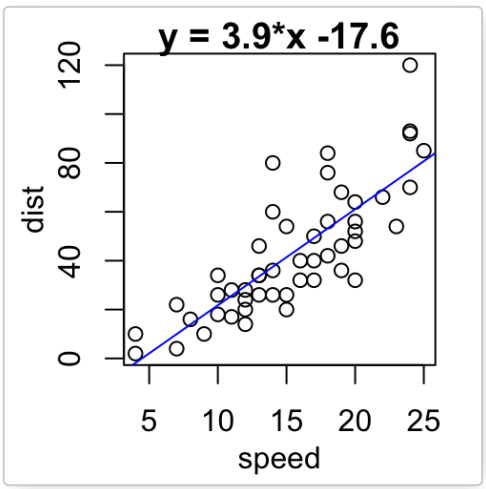
```
plot(cars)
abline(h=40, col="blue")
```



Add regression line

lm() function is used to fit linear models.

```
par(mgp=c(2,1,0), mar=c(3,3,1,1))
# Fit regression line
require(stats)
reg<-lm(dist ~ speed, data = cars)
coeff=coefficients(reg)
# equation of the line :
eq = paste0("y = ", round(coeff[2],1), "*x ", round(coeff[1],1))
# plot
plot(cars, main=eq)
abline(reg, col="blue")
```



Infos

This analysis has been performed using **R statistical software** (ver. 3.1.0).

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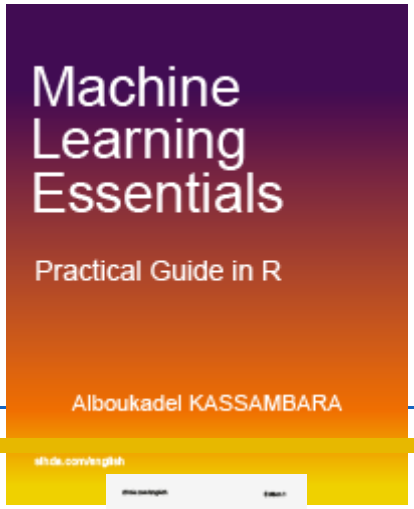

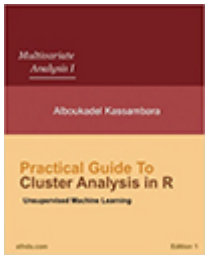

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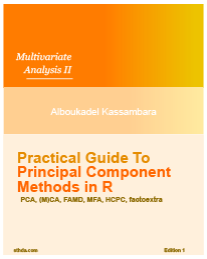

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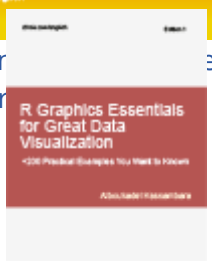

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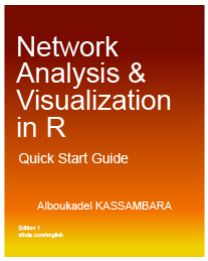

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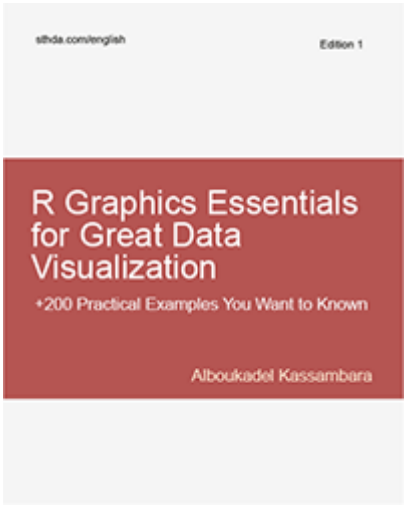

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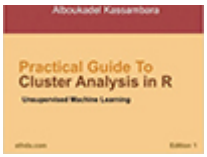

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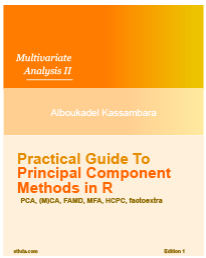

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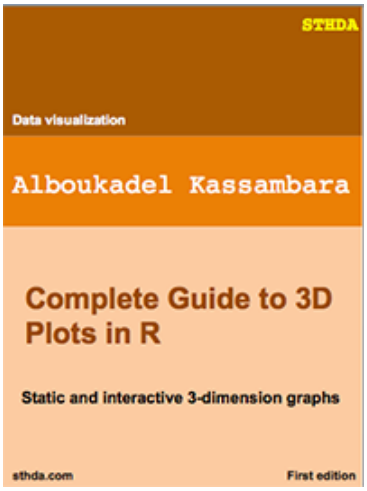

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