Dzień 1 - Model nieliniowy - nls

Spis treści

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Model nieliniowy - nls

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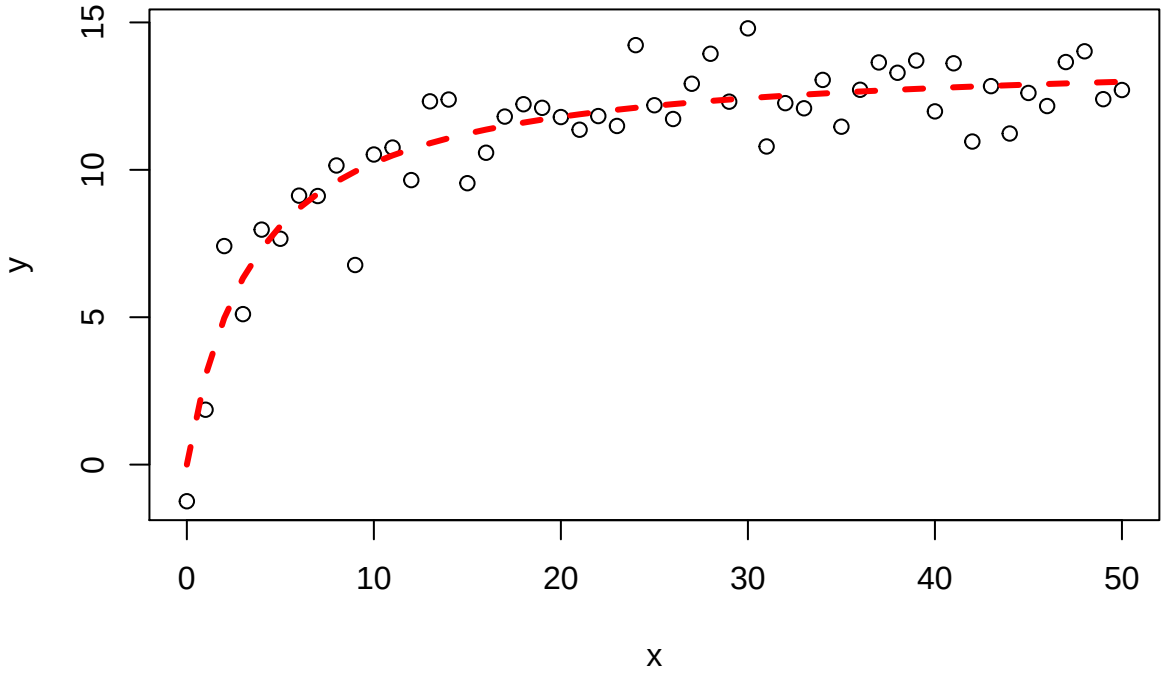
Wersja jednowymiarowa

```
x<-seq(0,50,1)
y<-((runif(1,10,20)*x)/(runif(1,0,10)+x))+rnorm(51,0,1)
model<-nls(y~a*x/(b+x),start = list(a = 1,b = 3))
summary(model)
```

```
##
## Formula: y ~ a * x/(b + x)
##
## Parameters:
##   Estimate Std. Error t value Pr(>|t|)
## a  13.9226     0.3465  40.184  < 2e-16 ***
## b   3.6020     0.5318   6.774 1.49e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.121 on 49 degrees of freedom
##
## Number of iterations to convergence: 5
## Achieved convergence tolerance: 1.889e-06
```

```
plot(x,y)
lines(x,predict(model),lty=2,col="red",lwd=3)
```



Wersja wielowymiarowa

```
n <- 1000
x1 <- runif(n, min = 0, max = 100)
x2 <- runif(n, min = 0, max = 100)
y<-5*x1/(45+x2)+rnorm(n, sd = 3)
model2<-nls(y~b1*x1/(b2+x2),start = list(b1 = 1,b2 = 2))
summary(model2)
```

```
##
## Formula: y ~ b1 * x1/(b2 + x2)
##
## Parameters:
##    Estimate Std. Error t value Pr(>|t|)
## b1   4.8919     0.4726  10.350  < 2e-16 ***
## b2  45.0939     6.2564   7.208 1.12e-12 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.148 on 998 degrees of freedom
##
## Number of iterations to convergence: 8
## Achieved convergence tolerance: 3.319e-06
```