

Metodo de Euler con R
Ejemplo $y' = x^2$

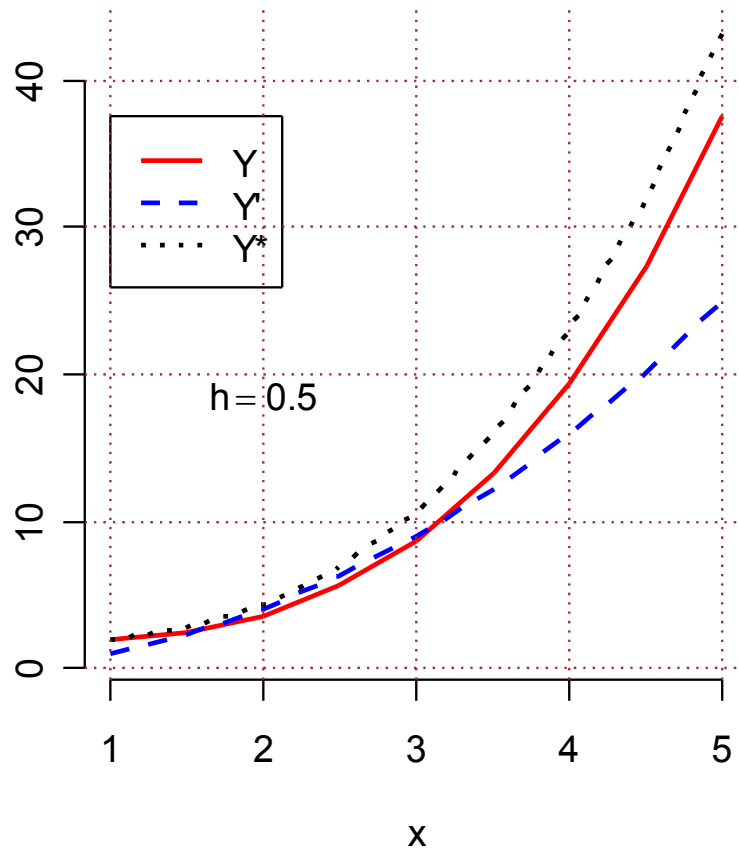
Euler: $y_{i+1} = y_i + h \cdot y'_i$

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h<-0.05
x<- seq(1,5,h)
n<-length(x)
y<-rep(0,n)
y1<-x^2
y2<-(x^3+5)/3
y[1]<-2
for (i in 1:(n-1) ) y[i+1]<-y[i]+h*x[i]^2
matplot(x,cbind(y,y1,y2),col=c("red","blue","black"),type="l",,lty=c(1,2,3),
,2,3),
frame=F,cex.main=1.2,main="y' = x^2",lwd=2,ylab="")
legend(1,max(y),c("Y","Y'","Y*"),col=
c("red","blue","black"),lty=c(1,2,3),lwd=2)
grid(col="brown")
ecuacion<-substitute( h==a ,list(a=h))
text(2,max(y)/2,as.expression(ecuacion))
tabla<- cbind(x,y,y1,y2)
print(tabla)

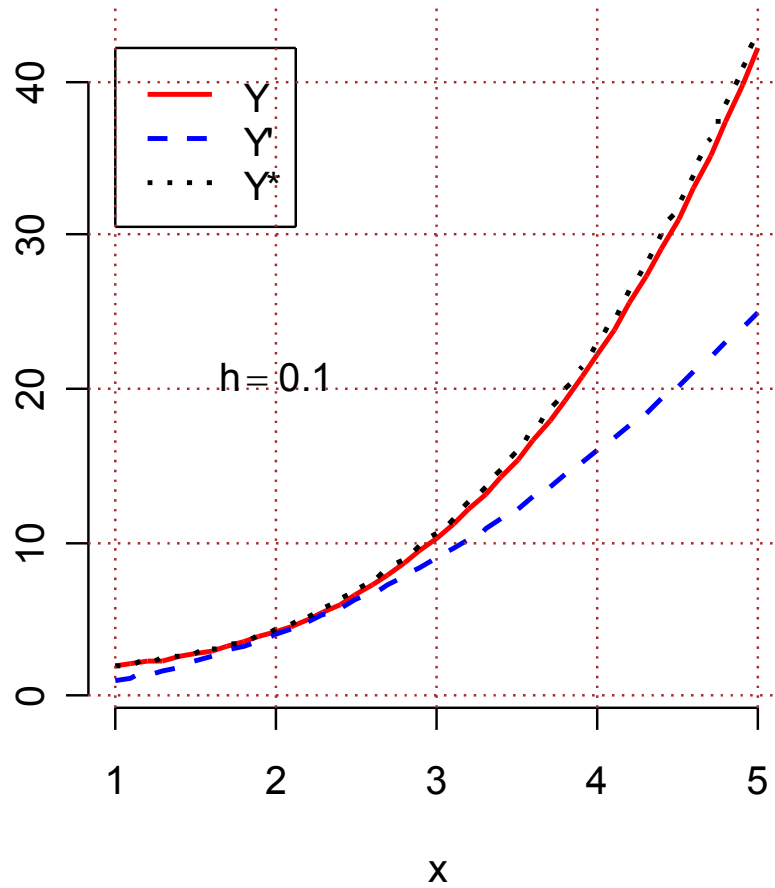
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$$y' = x^2$$



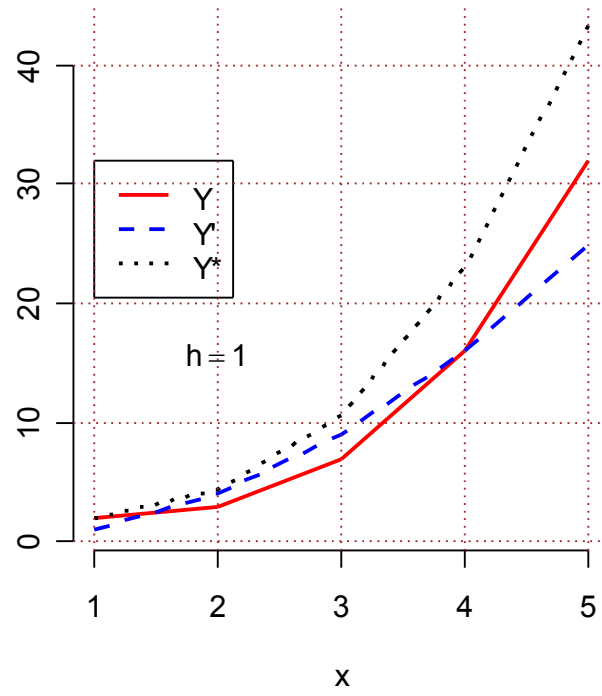
Cambiar h al valor de 0.1 y evaluar los resultados.

$$y' = x^2$$



Completar para $h=1$, $h=0.5$

$$y' = x^2$$



$$y' = x^2$$

