Financial Engineering - HA 2

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```
> library(ggplot2)
> lamb_g <- 1/20
> h <- function(x) {
+   if(x > 20) {
+     a <- 1
+   } else {
+       a <- 0
+       }
+   return(a)
+ }
> f <- function(x) {
+   return(exp(-x))
+ }
> g <- function(x) {
+   return(lamb_g*exp(-lamb_g*x))
+ }
> fh<-function(x){
+   hx<-sapply(x,h)
+   return(f(x)*hx)
+ }
> seq<-seq(19.5,30,0.001)
> v1<-c(rep(seq,2))
> v2<-c(fh(seq),g(seq)/10^7)
> v3<-factor(c(rep('f(x)h(x)',length(seq)),rep('g(X)',length(seq))))
> dt<-data.frame(v1)
> dt$v2<-v2
> dt$v3<-v3
> names(dt)<-c('x','value','functions')
> ggplot(dt,aes(x=x,y=value,colour=functions))+
+   geom_line()+
+   scale_y_continuous("f(x)h(x)",sec.axis = sec_axis(~ . *10^7, name = "g(x)"))
>
>
```