

# Screening method

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## Ex1: Screening method

The detailed derivation process can be found in the document “Detailed steps of the screening method.pdf”

```
mfscr.gamma=function(n, alpha){  
  u1=runif(n)  
  u2=runif(n)  
  k=1/alpha+1/exp(1)  
  y=ifelse(u2<=1/(alpha*k),  
    (alpha*k*u2)^(1/alpha),  
    -log(k*(1-u2)))  
  return(y[(y<=1&u1<=exp(-y)) |  
    (y>1&u1<y^(alpha-1))])  
}
```

```
alpha=0.6  
x=mfscr.gamma(5000, alpha)  
hist(x, probability = T, breaks = 24, main="")  
lines(density(x), col="blue", xlim=c(0,6))  
sequ=seq(0,6,by=0.01)  
lines(sequ, dgamma(sequ, alpha), col="red")  
legend(4, 1, pch=c(17,8), col=c("blue","red"), cex=0.5,  
  legend = c("Sample density function", "Gamma distribution"))
```

