

# Practical 10

Find the naive estimator for 50 gamma random variates with  $h=0.5$

## Workout

first of all we will generate 50 random variables from built in *rgamma()*, let us take shape=10

$\sigma$

```
set.seed(400)
xobs<-rgamma(50,shape=10)
n=length(xobs)
h<-0.5
```

Now we will create a weight function in R

```
w=function(x)
{
  w=ifelse(abs(x)<1,0.5,0)
  return(w)
}
```

Let us create the estimator function

```
f<-Vectorize(function(x)
{
  t<-sum(w((x-xobs)/h))/(n*h)
  return(t)
})
```

Now we need to plot density function

```
x<-seq(1.5,19.5,1)
plot(stepfun(x,f(1:20)),lwd=3,main="Naive Density Estimate")
segments(x0=10,y0=0,x1=10,y1=f(10),col=2,lwd=1)
```

# Naive Density Estimate

