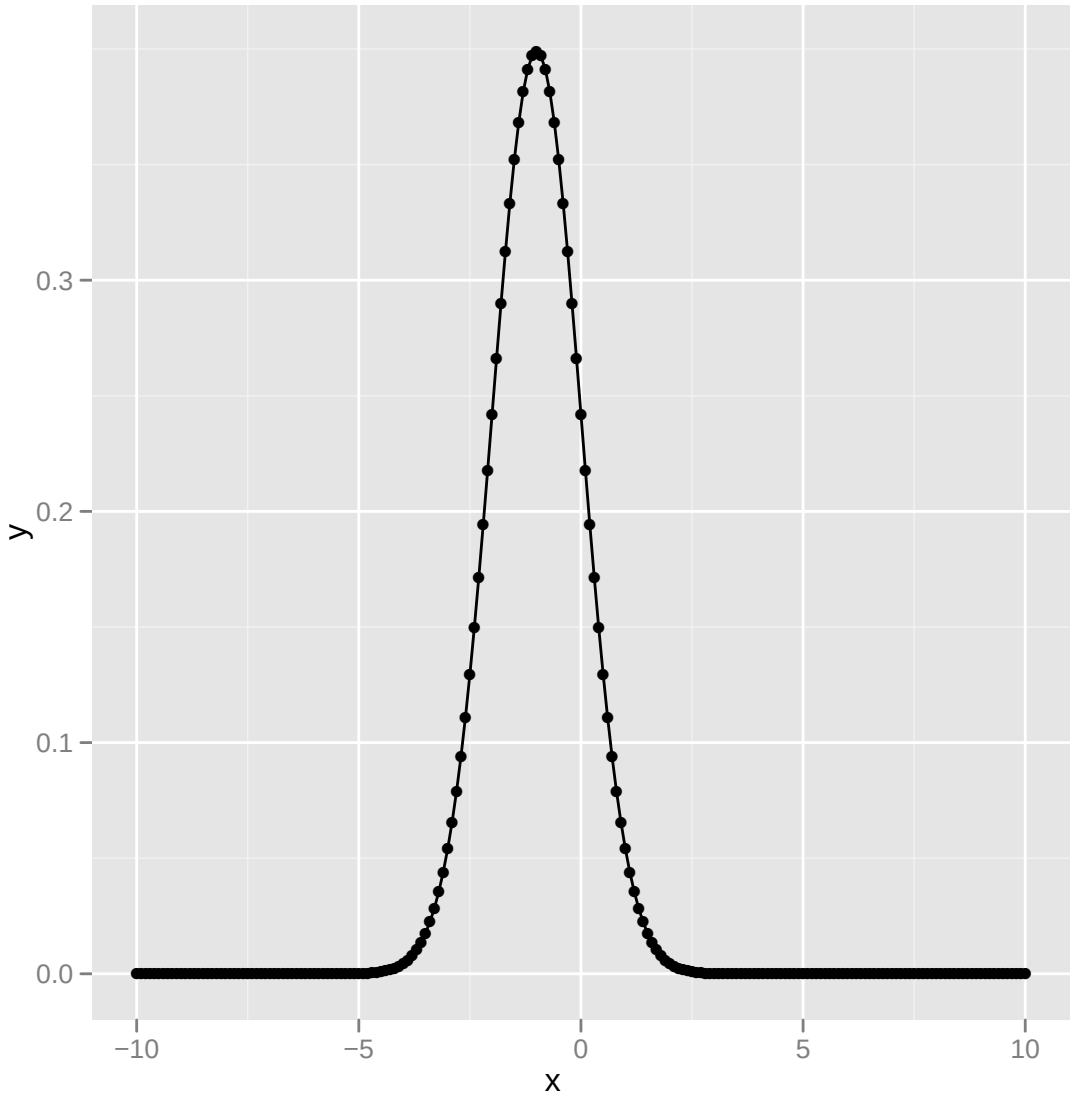
Here we created a function we never got around to using.

```
>         x<-seq(-10,10,0.1)
>         a<-sapply(x,dnorm,-1,1)
>         b<-sapply(x,dnorm,0,2)
>         c<-sapply(x,dnorm,2,3)
```

Create an x which we plug into `dnorm` so we can plot it later.

```
>         print(qplot(x,a)+geom_line()+ylab("y")) #gaussian with (-1,1)
>         print(qplot(x,b)+geom_line()+ylab("y")) #gaussian with (0,2)
>         print(qplot(x,c)+geom_line()+ylab("y")) #gaussian with (2,3)
```

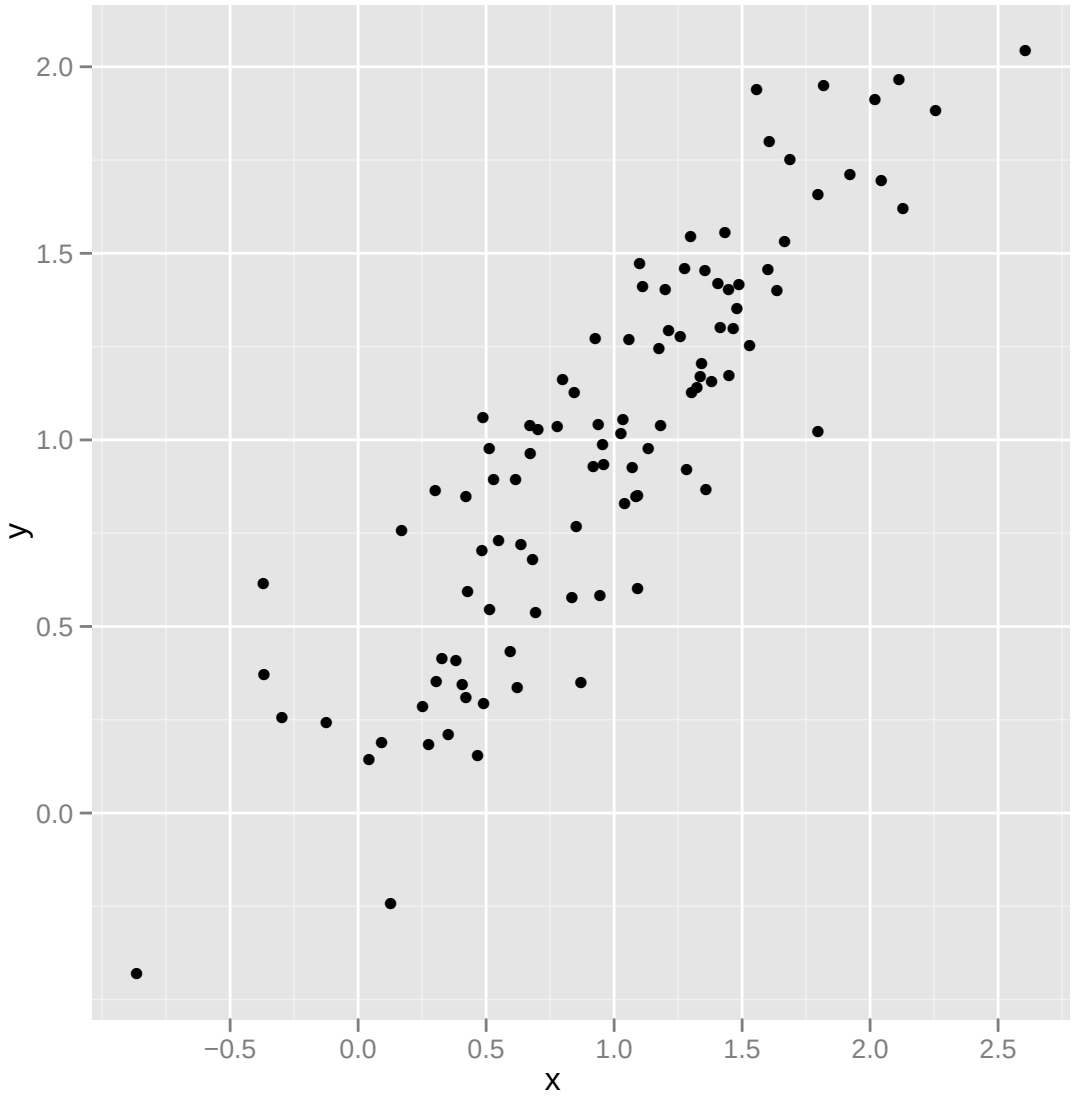


A bunch of gaussian plots. Unto question 2!

```
>         #q2: make a 2d-gaussian with N=100
>         N=100
>         twoDgauss<-function(N,mu,sig11,sig12,sig21,sig22){
+           #assumes mean is (mu,mu)
+           z<-matrix(c(rnorm(N*2)),2,N)
+           mu<-matrix(replicate(N,mu),2,N)
+           sigma<-matrix(c(sig11,sig12,sig21,sig22),2,2)
+           L<-t(chol(sigma))
+           y<-mu+(L%*%z)
+           return(y)
+         }
>         y<-twoDgauss(N=N,mu=1,sig11=0.3,sig12=0.2,sig21=0.2,sig22=0.2)
>         y10k<-twoDgauss(N=10000,mu=1,sig11=0.3,sig12=0.2,sig21=0.2,sig22=0.2)
```

We defined a function that spits out gaussian stuff given Σ and μ.

```
>         print(qplot(y[1,],y[2,])+xlab("x")+ylab("y"))
>         print(qplot(y10k[1,],y10k[2,])+geom_bin2d(aes(fill=log2(..count..)),binwidth=c(0.05,0.05
```



Some of the 2D Gaussian plots.