Quiz 3 R Script

```
> library(NCStats)
> plt <- FALSE
>
> ## Probability Questions
> mn <- 65.1; s <- 107.7
> ( distrib(90,mean=mn,sd=s/sqrt(35),lower.tail=FALSE,plot=plt) )
```

```
[1] 0.0856898
```

```
> ( ab <- distrib(90,mean=mn,sd=s/sqrt(60),plot=plt))
```

```
[1] 0.9633413
```

```
> ( a <- distrib(50,mean=mn,sd=s/sqrt(60),plot=plt))
```

```
[1] 0.1387356
```

```
> ab-a
```

```
[1] 0.8246057
```

```
> ( distrib(0.25,mean=mn,sd=s/sqrt(50),type="q",plot=plt) )
```

```
[1] 54.82679
```

```
> (distrib(0.75,mean=mn,sd=s/sqrt(50),type="q",plot=plt) )
```

```
[1] 75.37321
```

```
> ## First p-value and conf. regions
> xbar1 <- 515; mu01 <- 500
> sigma1 <- 50; n1 <- 25; SE1=sigma1/sqrt(n1)
> ( pval1 <- 2*distrib(xbar1,mean=mu01,sd=SE1,lower.tail=FALSE,plot=plt) )
```

```
[1] 0.1336144
```

```
> ( zstar1 <- distrib(0.995,type="q",plot=plt))
```

```
[1] 2.575829
```

```
> ( LCI1 <- xbar1-zstar1*SE1 )
```

```
[1] 489.2417
```

```
> ( UCI1 <- xbar1+zstar1*SE1 )
```

```
[1] 540.7583
```

```
> ## Calc beta
> mua <- 465
> ( rejreg <- distrib(0.01,mean=mu01,sd=SE1,type="q",plot=plt) )
```

```
[1] 476.7365
```

```
> ( beta <- distrib(rejreg,mean=mua,sd=SE1,lower.tail=FALSE,plot=plt) )
```

```
[1] 0.1202672
```

```
> ## Second p-value anc conf. regions
> xbar2 <- 2504; mu02 <- 2200
```

```
> sigma2 <- 1200; n2 <- 118; SE2=sigma2/sqrt(n2)
> ( pval2 <- distrib(xbar2,mean=mu02,sd=SE2,lower.tail=FALSE,plot=plt) )
```

```
[1] 0.0029625
```

```
> ( zstar2 <- distrib(0.90,type="q",lower.tail=FALSE,plot=plt))
```

```
[1] -1.281552
```

```
> ( LCB2 <- xbar2+zstar2*SE2 )
```

```
[1] 2362.428
```

```
> ## Sample size calculation
> me <- 3; sigma3 <- 20
> ( zstar3 <- distrib(0.95,type="q",plot=plt) )
```

```
[1] 1.644854
```

```
> ( mice <- (zstar3*sigma3/me)^2 )
```

```
[1] 120.2464
```

```
> ceiling(mice)
```

```
[1] 121
```