```
> #Worksheet 2 Solutions
> 3<5
[1] TRUE
> 3>5
[1] FALSE
> 35||3<5
[1] TRUE
> sqrt(4)
[1] 2
> c<-5
> c^3
[1] 125
> c*3
[1] 15
> objects()
[1] "c"      "mymat"  "square" "women"  "x"      "y"      "z"
> ls()
[1] "c"      "mymat"  "square" "women"  "x"      "y"      "z"
> rm(c)
> objects()
[1] "mymat"  "square" "women"  "x"      "y"      "z"
> c<-5
> square<-function(x){x^2}
> ls()
[1] "c"      "mymat"  "square" "women"  "x"      "y"      "z"
> square
function(x){x^2}
```

```
>  square(c)
[1] 25
>  c<-4
>  c
[1] 4
>  seq(4)
[1] 1 2 3 4
>  rep(4)
[1] 4
>  rep(4,3)
[1] 4 4 4
>  x<-c(1,0,0)
>  y<-c(1,2,0)
>  z<-c(1,2,5)
> cbind(x,y,z)
     x y z
[1,] 1 1 1
[2,] 0 2 2
[3,] 0 0 5
> rbind(x,y,z)
  [,1] [,2] [,3]
x    1    0    0
y    1    2    0
z    1    2    5
> mymat<-rbind(x,y,z)
> t(mymat)
     x y z
```

```
[1,] 1 1 1

[2,] 0 2 2

[3,] 0 0 5

> apply(mymat,2,mean)

[1] 1.000000 1.333333 1.666667

> apply(mymat,1,mean)

       x        y        z

0.3333333 1.0000000 2.6666667

> t(apply(mymat,1,sort))

  [,1] [,2] [,3]

x    0    0    1

y    0    1    2

z    1    2    5

> apply(mymat,2,sort)

  [,1] [,2] [,3]

x    1    0    0

y    1    2    0

z    1    2    5

> sweep(mymat,2,apply(mymat,2,mean))

  [,1]      [,2]      [,3]

x    0 -1.3333333 -1.666667

y    0  0.6666667 -1.666667

z    0  0.6666667  3.333333

> y+z

[1] 2 4 5

> y-z

[1]  0  0 -5
```

```
> y*z
[1] 1 4 0
> mymat%*%solve(mymat)
  x y z
x 1 0 0
y 0 1 0
z 0 0 1
> x%o%y
     [,1] [,2] [,3]
[1,]    1    2    0
[2,]    0    0    0
[3,]    0    0    0
> z[3]<-3
> mymat[3,3]<-3
> women<-read.csv("worksheet2_women.csv",header=F)
> women
     V1   V2
1  169.6 71.2
2  166.8 58.2
3  157.1 56.0
4  181.1 64.5
5  158.4 53.0
6  165.6 52.4
7  166.7 56.8
8  156.5 49.2
9  168.1 55.6
10 165.3 77.8
```

```
> str(women)
'data.frame':   10 obs. of  2 variables:
 $ V1: num  170 167 157 181 158 ...
 $ V2: num  71.2 58.2 56 64.5 53 52.4 56.8 49.2 55.6 77.8
> colnames(women)
[1] "V1" "V2"
> names(women)<-c("Height","Weight")
> women[,1]
 [1] 169.6 166.8 157.1 181.1 158.4 165.6 166.7 156.5 168.1 165.3
> women[,2]
 [1] 71.2 58.2 56.0 64.5 53.0 52.4 56.8 49.2 55.6 77.8
>
> attach(women)
The following object(s) are masked from 'women (position 3)':

    Height, Weight
> stem(Height)

  The decimal point is 1 digit(s) to the right of the |

  15 | 778
  16 |
  16 | 56778
  17 | 0
  17 |
  18 | 1
```

```
> stem(Weight)

  The decimal point is 1 digit(s) to the right of the |

  4 | 9
  5 | 236678
  6 | 5
  7 | 18

> hist(Height)
> hist(Weight)
> boxplot(Height,Weight)
> plot(Height,Weight)
> plot(Height,Weight,type="l")
> plot(Height,Weight)
> abline(lsfit(Height,Weight)$coef)
> abline(lm(Weight ~ Height))
))
```