

```
#Ryan Allison  
#Assignment 2
```

INPUT

```
#Problem 1
```

```
a<-5:8  
a  
a[2]  
a[4]  
a[2]*a[4]  
b<-c(3,4)  
a[b]  
a[c(-2)]  
a[-b]
```

```
#Problem 2
```

```
a<-1:9  
dim(a)<-c(3,3)  
matrix(a,3,3,byrow=TRUE)  
a[2,2]  
a[2,]  
a[,3]  
t(a)  
a*t(a)  
t(a)*a  
det(a)  
diag(a)
```

```
#Problem 3
```

```
SALARY<-c(23,23,25,27,25,24,24,31)  
SALARY  
barplot(SALARY)  
mean(SALARY)  
abline(h=mean(SALARY))  
median(SALARY)  
abline(h=median(SALARY), col='red')  
stdev<-sd(SALARY)  
abline(h=mean(SALARY)-2*stdev, col='blue')  
abline(h=mean(SALARY)+2*stdev, col='blue')
```

```
#Problem 4
```

```
x<-rnorm(10000, mean=200, sd=15)  
head(x)  
mean(x)+2*sd(x)  
mean(x)-2*sd(x)  
hist(rnorm(10000, mean=200, sd=15), main="Normal")  
mean(x)  
abline(v=mean(x), col='red')  
stdev<-sd(x)  
stdev
```

```
abline(v=mean(x)-2*stdev, col='blue')
abline(v=mean(x)+2*stdev, col='green')
```

OUTPUT

```
> #Ryan Allison
> #Assignment 2
>
> #Problem 1
> a<-5:8
> a
[1] 5 6 7 8
> a[2]
[1] 6
> a[4]
[1] 8
> a[2]*a[4]
[1] 48
> b<-c(3,4)
> a[b]
[1] 7 8
> a[c(-2)]
[1] 5 7 8
> a[-b]
[1] 5 6
>
> #Problem 2
> a<-1:9
> dim(a)<-c(3,3)
> matrix(a,3,3,byrow=TRUE)
      [,1] [,2] [,3]
[1,]   1   2   3
[2,]   4   5   6
[3,]   7   8   9
> a[2,2]
[1] 5
> a[2,]
[1] 2 5 8
> a[,3]
[1] 7 8 9
> t(a)
      [,1] [,2] [,3]
[1,]   1   2   3
[2,]   4   5   6
[3,]   7   8   9
> a*t(a)
      [,1] [,2] [,3]
[1,]   1   8  21
[2,]   8  25  48
[3,]  21  48  81
```

```

> t(a)*a
      [,1] [,2] [,3]
[1,]   1   8  21
[2,]   8  25  48
[3,]  21  48  81
> det(a)
[1] 0
> diag(a)
[1] 1 5 9
>
> #Problem 3
> SALARY<-c(23,23,25,27,25,24,24,31)
> SALARY
[1] 23 23 25 27 25 24 24 31
> barplot(SALARY)
> mean(SALARY)
[1] 25.25
> abline(h=mean(SALARY))
> median(SALARY)
[1] 24.5
> abline(h=median(SALARY), col='red')
> stdev<-sd(SALARY)
> abline(h=mean(SALARY)-2*stdev, col='blue')
> abline(h=mean(SALARY)+2*stdev, col='blue')
>
> #Problem 4
> x<-rnorm(10000, mean=200, sd=15)
> head(x)
[1] 211.2338 194.3379 207.3101 194.7738 188.3128 166.5227
> mean(x)+2*sd(x)
[1] 230.063
> mean(x)-2*sd(x)
[1] 170.0931
> hist(rnorm(10000, mean=200, sd=15), main="Normal")
> mean(x)
[1] 200.0781
> abline(v=mean(x), col='red')
> stdev<-sd(x)
> stdev
[1] 14.99249
> abline(v=mean(x)-2*stdev, col='blue')
> abline(v=mean(x)+2*stdev, col='green')
>

```

Normal

