In [1]:

```
m1<-matrix(c(1,2,3,4,5,6,7,8,9),nrow=3,ncol=3,byrow=TRUE)
print(m1)
```

```
     [,1] [,2] [,3]
[1,]    1    2    3
[2,]    4    5    6
[3,]    7    8    9
```

In [2]:

```
m2<-matrix(c(1,2,3,4,5,6,7,8,9),nrow=3,ncol=3)
print(m2)
```

```
     [,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
```

In [3]:

```
m3<-matrix(c(1:12),nrow=4)
print(m3)
```

```
     [,1] [,2] [,3]
[1,]    1    5    9
[2,]    2    6   10
[3,]    3    7   11
[4,]    4    8   12
```

In [9]:

```
rownames=c('row1','row2','row3','row4')
colnames=c('col1','col2','col3')
m4<-matrix(c(1:12),nrow=4,ncol=3,byrow=TRUE,dimnames=list(rownames,colnames))
print(m4)
```

```
     col1 col2 col3
row1    1    2    3
row2    4    5    6
row3    7    8    9
row4   10   11   12
```

In [10]:

```
rownames=c('row1','row2','row3','row4')
colnames=c('col1','col2','col3')
m5<-matrix(c(1:12),nrow=4,ncol=3,byrow=TRUE,dimnames=list(rownames,colnames))
print(m5[,2])
```

```
row1 row2 row3 row4
   2    5    8   11
```

In [12]:

```
rownames=c('row1','row2','row3','row4')
colnames=c('col1','col2','col3')
m6<-matrix(c(1:12),nrow=4,ncol=3,byrow=TRUE,dimnames=list(rownames,colnames))
print(m6[1,])
```

```
col1 col2 col3
   1    2    3
```

In [23]:

```
m7<-matrix(c(1:12),nrow=4)
m8<-matrix(c(13:24),nrow=4)
m10=m7+m8
print(m10)
```

```
     [,1] [,2] [,3]
[1,]   14   22   30
[2,]   16   24   32
[3,]   18   26   34
[4,]   20   28   36
```

In [18]:

```
m7<-matrix(c(1:12),nrow=4)
m8<-matrix(c(13:24),nrow=4)
m10=m7-m8
print(m10)
```

```
     [,1] [,2] [,3]
[1,]  -12  -12  -12
[2,]  -12  -12  -12
[3,]  -12  -12  -12
[4,]  -12  -12  -12
```

In [19]:

```
m7<-matrix(c(1:12),nrow=4)
m8<-matrix(c(13:24),nrow=4)
m10=m7*m8
print(m10)
```

```
     [,1] [,2] [,3]
[1,]   13   85  189
[2,]   28  108  220
[3,]   45  133  253
[4,]   64  160  288
```

In [20]:

```
m7<-matrix(c(1:12),nrow=4)
m8<-matrix(c(13:24),nrow=4)
m10=m7/m8
print(m10)
```

```
          [,1]      [,2]      [,3]
[1,] 0.07692308 0.2941176 0.4285714
[2,] 0.14285714 0.3333333 0.4545455
[3,] 0.20000000 0.3684211 0.4782609
[4,] 0.25000000 0.4000000 0.5000000
```

In [21]:

```
m7<-matrix(c(1:12),nrow=4)
m8<-matrix(c(13:24),nrow=4)
m10=m7%%m8
print(m10)
```

```
     [,1] [,2] [,3]
[1,]    1    5    9
[2,]    2    6   10
[3,]    3    7   11
[4,]    4    8   12
```

In [ ]:

```

```