Test 1 for Learning-R

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1 Create following vectors

```
# 1
1:100

# 2
2*(25:-1)

# 3
rep(c(0,1,2), 30)

# 4
seq(from=3, to=9, by=0.6)

# 5
rep(c(T,F), 20)
```

2 Create following matrices

```
# 1
outer(1:3, 0:2, '+')

# 2
matrix(1:9, nrow=3) %% 2 == 1

# 3
abs(outer(0:-5, 0:5, '+')) + 1

# 4
m = matrix(0, nrow=6, ncol=6)
m[col(m)==row(m)] = 1
```

```
# 5
m = matrix(0, nrow=6, ncol=6)
m[col(m)==row(m)] = 1:6

# 6
m = matrix(0, nrow=6, ncol=6)
m[col(m)==row(m)] = 1
m[(col(m)+row(m))==7] = 1

# 7
m = matrix(0, nrow=6, ncol=6)
m[abs(col(m)-row(m))==1] = 1
```

3 Use for loop to calculate

```
# 1
ans = 0
for (i in 1:100) {
    ans = ans + i^2
}

# 2
ans = 0
for (i in 1:10) {
    for (j in 1:10) {
        ans = ans + i*j
    }
}

# 3
ans = 0
for (i in 1:10) {
    for (j in 1:10) {
        for (k in 1:10) {
            ans = ans + (i*j)^k
        }
    }
}
```