

The “Live” Code of Lecture 1

```
num = 5  
num
```

```
## [1] 5
```

```
alph = "a"  
alph
```

```
## [1] "a"
```

```
class(num)
```

```
## [1] "numeric"
```

```
class(alph)
```

```
## [1] "character"
```

```
# Variables (like num and alph) can have  
# several "types", e.g. numeric or character  
# This can be checked by using the class command.
```

```
numchar = "5"  
class(numchar)
```

```
## [1] "character"
```

```
# Some algebra  
#####
```

```
5^2
```

```
## [1] 25
```

```
x = exp(1)  
x
```

```
## [1] 2.718282
```

```
y = log(x)  
y
```

```
## [1] 1
```

```
# Equality vs. equality, and Boolean variables
#####
```

```
i = 1
j = i
i = 2
j=i
j
```

```
## [1] 2
```

```
i = 1
i = i + 1

i <-1
i <-i+1
i
```

```
## [1] 2
```

```
# = means assignment, not mathematical equality
```

```
i==j
```

```
## [1] TRUE
```

```
z = i==j
z
```

```
## [1] TRUE
```

```
class(z)
```

```
## [1] "logical"
```

```
# Another data type is "logical", often also
# called Boolean
```

```
# VECTORS
#####
```

```
a = c(2,5,90)
a
```

```
## [1] 2 5 90
```

```
b = c("w", "o", "w")
b
```

```
## [1] "w" "o" "w"
```

```
cat(b)
```

```
## w o w
```

```
cat(b, sep="")
```

```
## wow
```

```
# delete a variable
```

```
rm(a, b)
```

```
# Delete everything in working space
```

```
rm(list = ls())
```

```
#####
```

```
x = 0:10
```

```
x
```

```
## [1] 0 1 2 3 4 5 6 7 8 9 10
```

```
x = seq(from = 0,  
        to = 10,  
        by = 0.5)
```

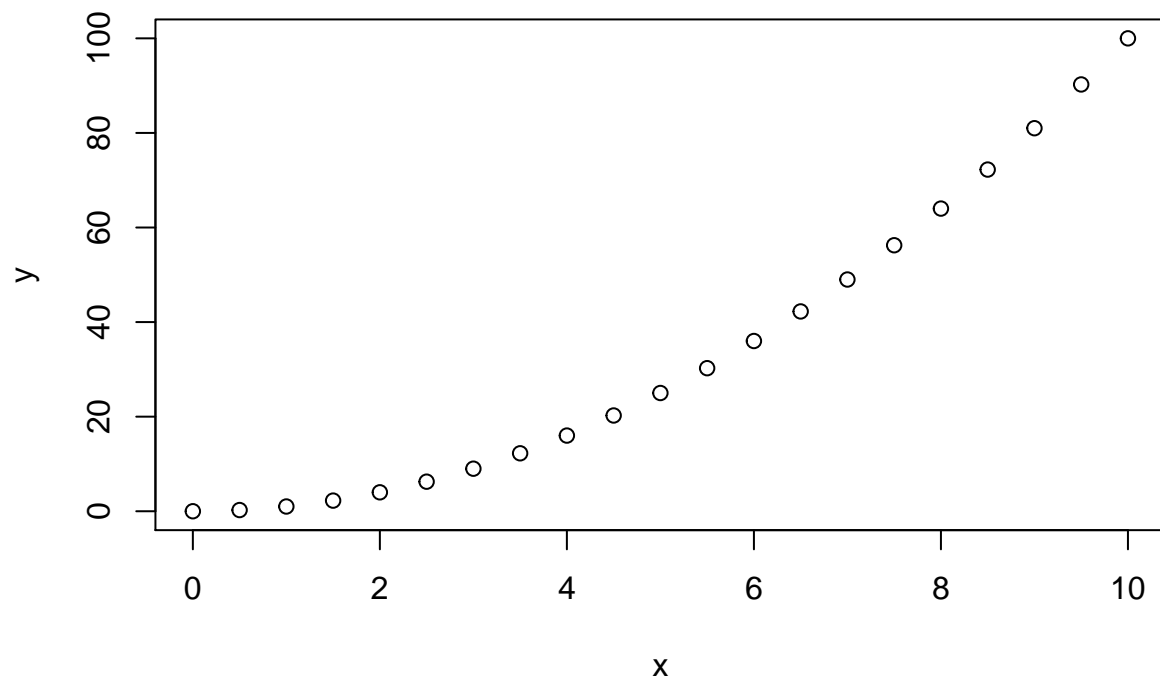
```
x
```

```
## [1] 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5  
## [15] 7.0 7.5 8.0 8.5 9.0 9.5 10.0
```

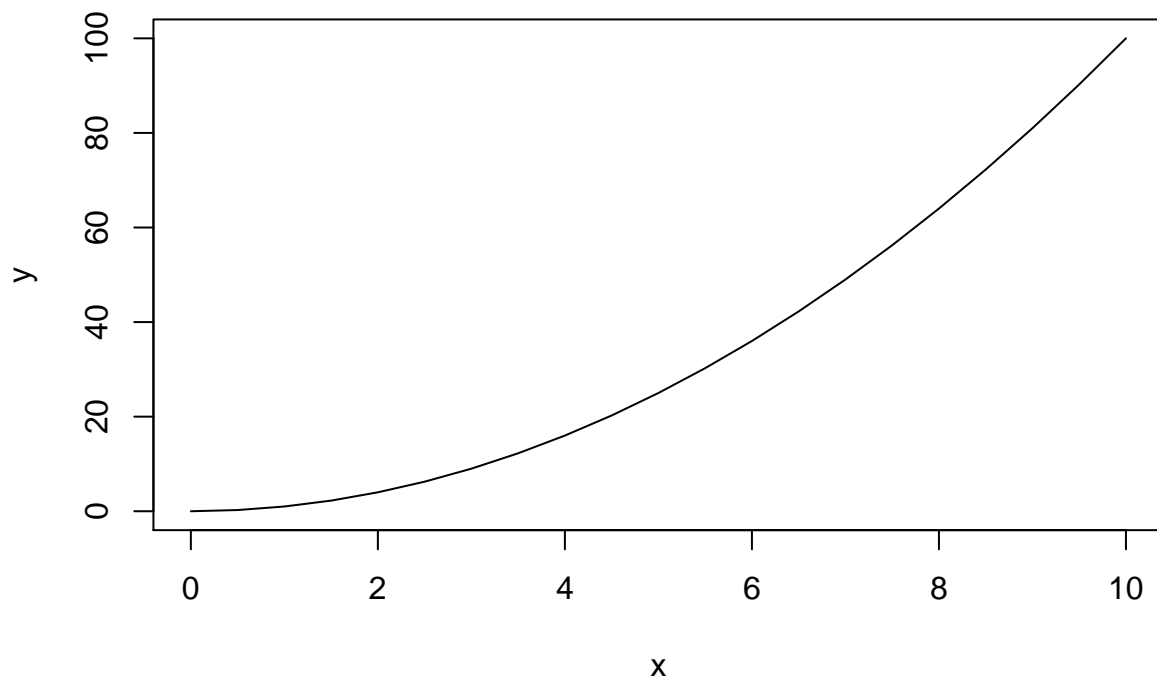
```
y = x^2  
y
```

```
## [1] 0.00 0.25 1.00 2.25 4.00 6.25 9.00 12.25 16.00 20.25  
## [11] 25.00 30.25 36.00 42.25 49.00 56.25 64.00 72.25 81.00 90.25  
## [21] 100.00
```

```
plot(x,y)
```



```
plot(x,y, type="l")
```



```
rep("Semester",6)
```

```
## [1] "Semester" "Semester" "Semester" "Semester" "Semester" "Semester"
```

```
n = as.character(1:6)
n
```

```
## [1] "1" "2" "3" "4" "5" "6"
```

```
paste(n, rep(". Semester",6))
```

```
## [1] "1 . Semester" "2 . Semester" "3 . Semester" "4 . Semester"
## [5] "5 . Semester" "6 . Semester"
```

```
paste0(n, rep(". Semester",6))
```

```
## [1] "1. Semester" "2. Semester" "3. Semester" "4. Semester" "5. Semester"
## [6] "6. Semester"
```