```
"Hello R!"
date()
1+2
1/(2+3) == 5
1:3 #вектор
as.matrix(1:) #матрица
as.matrix(1:3) #матрица

seq(from = 1, to = 3, by = .5)
order(1:3, decreasing = TRUE)
rev(1:3)
i <- sample(5)
1
j <- order(i)
list(i,j)
j
i[order(i)]

x <- "Привет"
y <-"Мир"
z <- c(x,y)
x
y
z
pint(z)
print(z)

install.packages("ggplot2")
library(ggplot2)
```

```
qplot(data = iris, x = Sepal.length, y = Petal.length)
qplot(data = iris,
      x = Sepal.Length,
      y = Petal.Length,
      color = Species,
      size = Petal.Width,
      alpha = I(0.7))

fx <- function(x) x*x
f <- function(a,b) fx(a) + fx(b)
f(2,3)

is.integer(7)
round(7) == 7
is.integer(as.integer(7))

0.33 == 3*0.11
0.45 == 3*0.15
round(0.45, 2) == round(3*0.15, 2)

pi
print(approx.pi <- 22/7)

x <- c(7,8,10,45)
is.vector(x)
print(x[1])
vector(length = 10)

x <- c(7,8,10,45)
```

```
y <- c(-7,-8,-10,-45)
x+y

x <- c(7,8,10,45)
x + c(-7,-8)

x <- c(1,2,3,4)
x.a <- array(x, dim = c(2,2))
x.a

dim(x.a)
is.vector(x.a)
is.array(x.a)

x <- c(1,2,3,4)
x.a <- array(x,dim = c(2,2))
#Получение значений
x.a[1,1]
x.a[,1]
#Вызов функций
which(x.a <= 2)
rowSums(x.a)
#Операторы

x.b <- array(c(-1,-2,-3,-4), dim = c(2,2))
x.c <- x.a + x.b
x.c

m <- matrix(c(40,1,60,3), nrow = 2)
```

```
m
is.array(m)
is.matrix(m)

f <- matrix(c(40,1,60,3), nrow = 2)
f
six.fives <- matrix(rep(5,6), ncol = 3)
six.fives
f %*% six.fives

f
o <- c(10,20)
o
f %*% o

rownames(f) <- c("трудодни", "сталь")
colnames(f) <- c("автомобили", "грузовики")
f
output <- c (20,10)
names(output) <- c("грузовики", "автомобили")
available <- c(1600,70)
names(available) <- c("трудодни", "сталь")
f %*% output[colnames(f)]

apply(f,1,mean)
f
apply(f,2,mean)

my.lst <- list("exponential",7,FALSE)
```

```
my.lst

my.lst <- list("exponential",7,FALSE)
names(my.lst) <- c("family","mean","is.symmetric")
my.lst
my.lst$family

a.matrix <- matrix(c(35,8,10,4), nrow = 2)
colnames(a.matrix) <- c("v1","v2")
a.matrix
a.matrix$v1
a.data.frame <- data.frame(a.matrix, logicals=c(TRUE, FALSE))
a.data.frame
a.data.frame$v1
a.data.frame[,"v1"]
a.data.frame[1,]
colMeans(a.data.frame)

rbind(a.data.frame, list(v1=-3, v2=-5, logicals=TRUE))
rbind(a.data.frame, c(3,4,6))
```