Exercise 1

Task 1

1. Assign the number 2 to an object `a`.
2. Take the natural logarithm of `a`.
3. Assign a new object using `sin <- a`.
4. What will be the output of `sin(sin)`? Try to predict the output *before* executing the code!
5. Assign a new variable `b` with the value `TRUE`.
6. What will be the result of `1 + b`? Why?
7. What will be the result of `sqrt(b)`?
8. What is the value of `b+b`?
9. Assign a new variable `c` with the value `'1'`.
10. What will be the result of `1 + c`? Why?

Task 2

1. Assign a new object `v` that is a vector with the elements `c(2, 4, 5, 6, 4, -1)`.
2. Add 1 to each element of the vector?
3. Swap the sign of the vector.
4. Get the second element of the vector.
5. Get all elements of the vector except the last one.
6. How many values of 4 does the vector contain?
7. Swap the sign of all negative values.

Task 3

1. Define a vector `f1` containing 5 arbitrary elements of the type character.
2. Define a vector `f2` containing 5 arbitrary elements of the type factor.
3. Define a vector `f3` containing 5 other arbitrary elements of the type numeric.
4. Create a list `L` containing the vectors `f1`, `f2`, `f3`.
5. Look at the structure of the list.
6. Create a `data.frame` `df1` using `L`. Look at the structure again.
7. What are the element on the second row?
8. What are the element on the second column?
9. What are the values between the 2nd and the 4th rows?
10. Save the data set as a csv. *Note: Use* `row.names = FALSE` *as additional argument!*
11. Load the data set into R as a new object `df2` and compare it with the original one `df1`. What is the problem here?