Basic JavaScript exercise sheet

The goal of this exercise sheet is to get some practice with the concepts that we learned during the first week of JS. The exercises are organized in ascending order of difficulty. Some exercises will require researching beyond what we learned in class and will be marked as such.

Keep in mind that the answer to any of these can be easily found on the internet. The goal is to learn, not get the correct answer.

Part 1 : Variables

1.1. Create 3 variables: number, string and Boolean
1.2. Assign the variables arbitrary values and print them to console, separated by spaces
1.3. Assign both the string and number variables with the value 5, without changing the variable type (number remains a number, string remains a string)
1.4. Output the result of a value comparison between the two (without conditionals)
1.5. Assign the result of a **value and type** comparison to the Boolean created above
1.6. Output the result

Part 2: Arrays

2.1. Create an array of color names: red, blue, green, orange, grey
2.2. Add a new color at the end of the array
2.3. Add a new color at the beginning of the array
2.4. Remove the 3rd element in the array
2.5. Print the 4th element in the array
2.6. Add a copy of the value of the first element at the end, without explicitly using a string (use the already existing value, so that the first and last element are the same)
2.7. Remove the first element of the array
2.8. Using one output command, print the array and the array in reverse
2.9. ***** Using a built-in (no loops yet) find the index of the green color, assign the result to a variable
2.10. Use the index variable to remove the color green from the array

Part 3: Objects

3.1. Create an object to represent a person. The person has: first name, last name, age, DOB (***** use a date object for an extra challenge), a boolean to represent employment status
3.2. The person object should also have a property to represent a pet. The pet is also an object (a nested object). The pet has a name, species, color.
3.3. Reverse the employment status of the person (extra challenge: do it without explicitly stating a Boolean value)
3.4. Change the name of the person's pet

3.5.* Programmatically add a new property to the person (not in advance, but during the run time of the script). This property will represent marital status. Assign a value to the newly created property
3.6. Instantiate 2 more people using the same object format. Create an array to contain all 3 people
3.7. In one output, print out the full name and marital status of all 3 people.

Part 4: W3Schools exercise

https://www.w3schools.com/js/exercise_js.asp is a fairly neat exercise, which will require you to learn some new things as you go. Avoid the last part (JS HTML DOM) for now, since that's the topic of next week. Feel free to stop at any point or skip it altogether and continue with this sheet.

Part 5: Advanced

This section is going to be more advanced and will require not only knowledge of the basic syntax of JavaScript, but also some problem-solving skills.

1. * Create a function that takes in a person object from part 3 and returns the name the pet object. Create a second function that takes a pet object and returns the name of the pet. Make your program instantiate a person object and extract the pet's name by chaining two function calls (chaining means taking the result of one function and using it as an argument to another function)

2. Create a function that takes in an array of person objects and returns the name of the first person who owns a cat. If no such person exists, the function returns an error message. You may use a (*) filter as a more "sophisticated" solution, or just use iteration.

3. Create a function that takes in an array and returns the array in reverse. **DO NOT** use array.reverse() or any other built-ins (this should be solved using a loop)

4. Create a function that takes an array of numbers (you can just assume they are all numbers and the array is non-empty) and returns the index of the largest number

5. If you finish every single exercise, come to me for an extra challenging one