

# Homework Assignment 1

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# 1. Functions and Return Values

These functions are given here:

```
function f(x) {  
    return g(x) + h(x) + q(x) + 2;  
}
```

```
function g(x) {  
    return 2*x + 4;  
}
```

```
function h(x) {  
    return q(x) + 4;  
}
```

```
function q(x) {  
    return 2 + x;  
}
```

1. What is the value of  $q(6)$ ?

2. What is the value of  $h(8)$ ?

3. What is the value of  $f(12)$ ?

NOTE: Do not compile this.  
Use your your mind and a pencil to solve this.

# 2. Syntax

1. Whats wrong in this code? Please correct it! Try without compiling!

```
var hallo = foo;
```

```
function sayHello( {  
    console.log('Hallo World');  
}
```

```
function countThe7 (array) {  
    var numSevens = 0;  
    for(var i=0; i<array.lenth; i = i++) {  
        if( array[i] = 7 ) {  
            theSevens++;  
        }  
    }  
}
```

```
return numSeven;  
}
```

```
sayHello();
```

```
console.log countThe7( array = [1,4,7,3,7,1,7,0,-1,7] );
```

## 2. Syntax

**2. Again, whats wrong in this code? Please correct it! Try without compiling! (1/2)**

```
var fruits = ['Apple', 'Ba na na', 'Mango'; 'Grapefruit'];
```

```
fruits['0'] = 'Lemon';
```

```
fruits.Banana = 'Melon';
```

```
for(var i=0; i<10; i++) {
```

```
    fruits[i] = 'Pickle';
```

```
}
```

## 2. Syntax

**2. Again, whats wrong in this code? Please correct it! Try without compiling! (2/2)**

```
var 'fullrandom' = {  
    123: 456;  
    'hallo': 'world',  
    cars: [ 'bmw'; 'porsche'; 'tesla', peugeot ];  
}
```

```
fullrandom.123 = 789;  
var key = 'halloooooo';  
fullrandom[key] = ('woooooooooorld');
```

# 3. Arrays

1. Create an array with some years where persons were born
2. Create an empty array (just `[]` )
3. Use a loop to fill the array with the ages of the persons
4. Use another loop to log into the console whether each person is of full age (18 or older), as well as their age
5. Finally, create a function called `printFullAge` which receives the array of years as an argument, executes the steps 2., 3. and 4. and returns an array of true/false boolean values: true if the person is of full age ( $\geq 18$  years) and false if not ( $< 18$  years)
6. Call the function with two different arrays and store the results in two variables: `full_1` and `full_2`

**Example input:** `[1965, 2008, 1992]`

**Example output:** `[true, false, true]`

Hint: you can use a loop not only to read from an array, like `y[i]`, but also to set values in an array, like `y[i] = ...`  
You can also use the specific array methods.

# 4. Arrays and Nested Loops

Create a function `numberTable()` with 2 parameters: **rows** and **columns**.

1. `numberTable(rows, columns)` should return an array with length of **rows**. In each item of the array there should be another array with length of **columns** and all items should be 0; Use a for-loop to create the array.

**Example:**

*numberTable(3, 4)* would return

```
[ [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0] ]
```

2. Modify the code so that instead of all items of the inner arrays being 0, they should have an ascending number from 0 to **columns**.

**Example:**

*numberTable(3, 4)* would return

```
[ [1, 2, 3, 4], [1, 2, 3, 4], [1, 2, 3, 4] ];
```

3. Modify the code so that `numberTable(3, 4)` would return

```
[ [1, 2, 3, 4], [5, 6, 7, 8], [9, 10, 11, 12] ];
```