practice exam questions 3/4/2022

1. write a function, averagePoints, to get an array containing the average points across for each player . Try with a regular for..of loop and then using map.

```
const player1 = {name: "Bob", points: [1, 2, 1]};
const player2 = {name: "Andre", points: [2, 0, 1]};
const player3 = {name: "Max", points: [1, 1, 1]};
const players = [player1, player2, player3];

console.log("expect [1.33, 1, 1 ]: ", averagePoints (players));

//console.log("expect [{Bob:1.33, Andre:1, Max:1} ]: ", averagePoints (players));
```

2. const array123 = [1, 2, 3]

   use map and an arrow function to get a new array with the squares of each element -- i.e., [1, 4, 9]

3. Implement the ask function, which should callback the yes function if the user answers yes to the question, else calls back the no function.

```
const prompt = require("prompt-sync")();
function ask(question, yes, no) {
}
function showOk() {
  console.log ( "You agreed." );
}
function showCancel() {
  console.log ( "You canceled the execution." );
}
ask("Do you agree?", showOk, showCancel);
```

4. replace the showCancel and showOk function declaration with arrow functions in the ask call

5. /* write functions executor, add, and mult as defined by the test below */

```
describe("executor", function(){
    it ("tests add", function(){
        assert.strictEqual(executor(add, 5, 10), 15);
    });
    it("tests mult", function(){
        assert.strictEqual(executor(mult, 5, 10), 50);
    });
});
```

1. [10] Create a unitConversion object using an object literal. It should have isDegrees boolean property and a method to convert from degrees to radians or vice versa if isDegrees is true/false respectively.

   Create a unitConversion object using constructor function, UnitConversion. It should have isDegrees property and method for conversion(same as above).

   Degrees=Radians×180/π

   unitConversion.isDegrees = false;

   unitConversion(10) → 1800/ **π** **//converts radians to degrees**

   unitConversion.isDegrees = true;

   unitConversion(10) = 10 * pi /180; //converts degrees to radians

2. [2] Rewrite the following function as an arrow function

   ```
   function printMe(){
       console.log("hello");
   }
   ```

3. Write a constructor function to create an object Item that has id, name, price, discount and freeShipping as properties and has the method, **getFinalPrice**().

   Default value of freeShipping is false.

   NOTE: Discount is percentage. Ex: 10 -> 10%.

   getFinalPrice(): subtract the discount from the price.

   Example: Price:500, discount:10 getFinalPrice()-> 500 - (10/100*500) = 450.

   ```
   const item1 = new Item(1,'cell phone',500,10);
   const item2 = new Item(2,'book',50,0,true);
   const item3 = new Item(3,'table',500,1);
   const item4 = new Item(4,'adapter',40,2,true);
   let shoppingCart = [item1,item2,item3,item4];
   ```

   a. [5] **getCheckoutPrice** - Return the sum of the prices (getFinalPrice()) of all items after discount including shipping charges. If the item is not eligible for free shipping, add $3 shipping charges for each item.

      Example

      getCheckoutPrice(shoppingCart) -> (500-(500*10/100)+3) + 50 + (500 - (500*1/100) + 3) + (40-(40*2/100)= **1040.2**

   b. [5] **getItemsPricedOver100** - Return all items priced over $100 before discount

getItemsPricedOver100(shoppingCart) ->

Result

```
[
  Item {
    id: 1,
    name: 'cell phone',
    price: 500,
    discount: 10,
    freeShipping: false,
    getFinalPrice: [Function (anonymous)]
  },
  Item {
    id: 3,
    name: 'table',
    price: 500,
    discount: 1,
    freeShipping: false,
    getFinalPrice: [Function (anonymous)]
  }
]
```

c. [10] **findCheapestItem**: Return item (name & price only) that has minimum price.

NOTE: Use getFinalPrice().

Example

findCheapestItem(shoppingCart) -> {name: 'adapter', price: 39.2}

6. Create an object calculator with two methods using an object literal:
getValues(operand1, operand2) takes two values and saves them as object properties.
sum() returns the sum of saved values.
mul() multiplies saved values and returns the result.

```
let calculator = {
  // ... your code ...
};
calculator.setValues(5, 10);
console.log( “expect 15 : “, calculator.sum() );
console.log(“expect 50 : “, calculator.mul() );
```

7. Create an object calculator with two methods using a constructor function:
calculator = new Calculator();

```
const numbers = [1, 5, 18, 2, 77, 108];
```

- use filter, find, and findIndex to find
  - all the even numbers
  - the first even number
  - the index of the first even number

8. use sort to sort an array of numbers in descending order
[4, 2, 8, 15].sort(/* something neededhere */); → [15, 8, 4, 2]

9. use split, join, and sort to take the words in a string and reorder them by shortest to longest

10.

```
let result = arr.map(function(item, index, array) {
  // returns the new value instead of item
});
let lengths = ["Bilbo", "Gandalf", "Nazgul"].map(item => item.length);
console.log(lengths); // 5,7,6
//modify so that it logs array with index: item.length instead of just item.length
console.log("expect 0: 5, 1: 7, 2: 6", lengths);
```

11. Get average age, round the result to keep only two decimals.

```
let array= [{name:"ram",age:29}, {name:"syam",age:40}, {name:"ganga",age:19}];
console.log(“expect 75.33”,getAverageAge(array));
```

12. Find the oldest man

```
console.log(“expect {name:"syam",age:40}”,findOldestMan(array));
```