# JavaScript Math Assignment

# Sum of cubes difference

THE PROBLEM: The sum of the cubes of the first ten natural numbers is,

13+23+...+103=3025

The cube of the sum of the first ten natural numbers is,

(1+2+...+10)3=166375

Hence the difference between the sum of the cubes of the first ten natural numbers and the cube of the sum is 166375−3025=163350.

Write a program to find the difference between these two numbers for any natural number provided by the user.

**If the user enters a decimal number, convert it to an integer using the parseInt() function.**

If the user enters zero or a negative number, then your function should return the message “Bad data. Try again.”

If the user enters a non-numeric value, your function should return the message “Bad data. Try again.”

**HOT TIP:** You ***can’t*** reuse your isNaturalNumber() function from a prior assignment to help you with your error trapping on this assignment. The error trapping rules are a little different. (See above.) But, you might want to look back at that earlier code.

## Getting started (Together as a class)

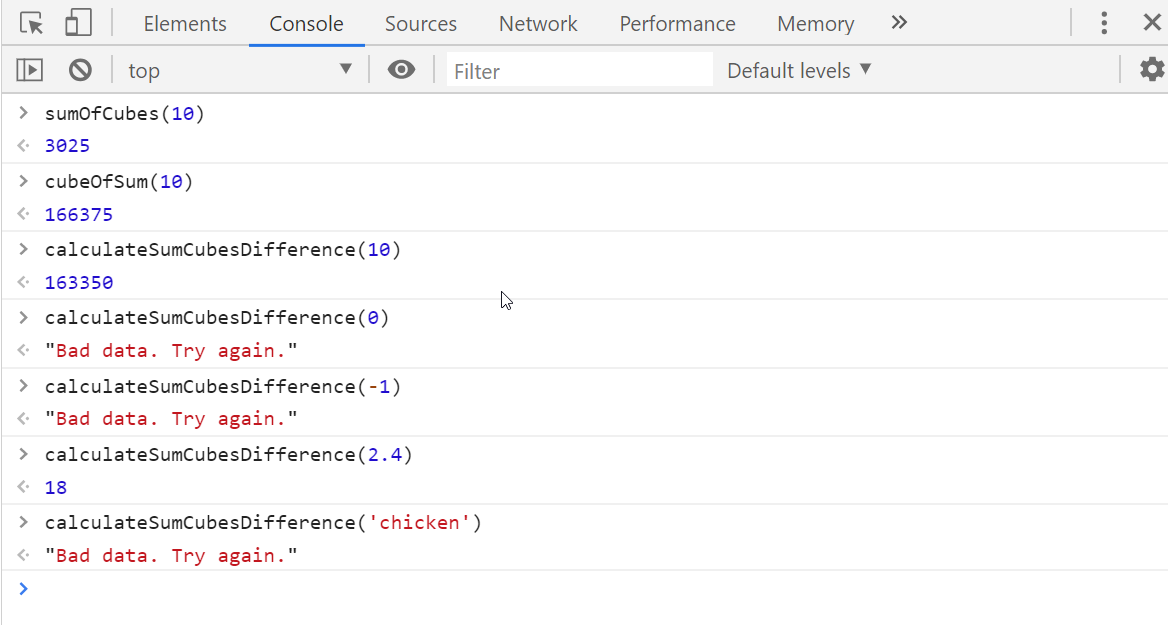
1. Retrieve assignment14\_cubes.zip provided by your instructor.
2. Extract the code into your mis2402workspace and open the index.html file in Visual Studio Code.
3. There's a particularly nasty bug in the start file. It will prevent the variable x from getting the value provided by the user. Can you find it? Fix it??

On your own

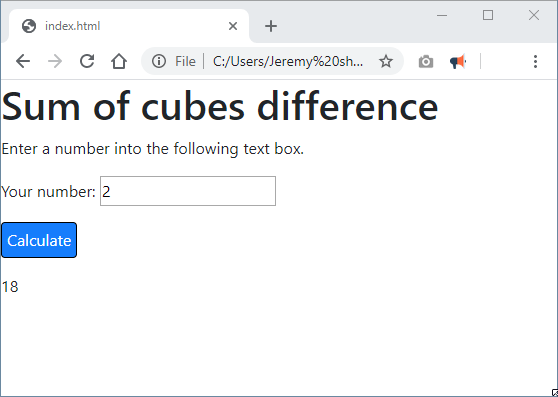
1. Complete the three functions set up for you there:
   1. sumOfCubes()
   2. cubeOfSum()
   3. calculateSumCubesDifference()
   4. Do not create any additional functions!

**HINT**: Both sumOfCubes and cubeOfSum require you to write a loop, and use the Math.pow() function.

1. Test your work using the web developer console. An example follows:



1. Test your work. A sample screenshot is shown below.



1. Test your work. Don’t forget to test your error trapping as well.
2. Upload your work. Be sure that you can find your work on the class server by typing in its URL in the browser. Test your work \*again\* on the class server.  
     
   For example:   
   http://misdemo.temple.edu/tux99999/assignment14\_cubes

How will this assignment be graded?

This assignment will be evaluated by an automated process.

* If your work is not found at the expected location on misdemo, you will get a score of **zero**.
* If your work generates **all output** correctly, you will get a score of 100%.
* If your work generates **almost all output** correctly (**only one** bad output), you will get a score of 80%
* If your work generates **some output** correctly (some right output, some wrong output), you will get a score of 60%
* If your work generates **only one output** correctly, you will get a score of 40%
* If your work does not generate any correct output, you will get a score of **zero**.