## Lab 3\_2 [15 points] JavaScript Functions

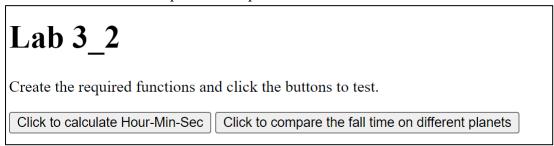
# **Objectives**

- Create and use JavaScript functions
- Practice debugging and error correction

### What to do

Please follow the steps to complete debugging and function creation tasks

1. Download and extract the lab3\_2.html and lab3\_2\_functions.js file. Open the HTML web page and you should a page like the following. However, the buttons are not working now. The reason is that the JavaScript code completion.



#### Part 1 (In-class marking):

2. [5 points] Write a function getHMS() that converts time in seconds format (e.g., 47136s) into a different format (e.g., 13:5:36 (13 hour, 5 minute 36 second)). Please follow the detailed steps in the comments of the JavaScript file. To be simple, assume the user will enter the number correctly, validation of the data is not required here.

The sample users' input and the result should look like the following screenshots.

| This page says Enter a number(0-86399) for the seconds |    |        |
|--|----|--------|
|  |    |        |
|  | ОК | Cancel |
| This page says   |    |        |
| 86398 seconds after 12:00AM is 23:59:58.               |    |        |
|  |    | ОК     |

#### Part 2 (Submit before due):

3. [3 points] Write a function calculateFreeFallTime(height, intialVelocity, gravity) that calculate the free fall time of an object from certain height on a planet. height, initial velocity, and acceleration of gravity (can use 'gravity' to be simple) are the parameters. The formula to calculate the free fall time t is

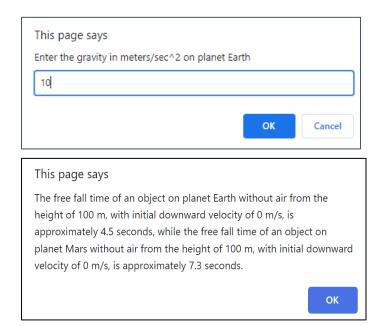
$$t = \frac{\sqrt{(v^2 + 2gh)} - v}{g},$$

where v is the initial downward velocity, g is the acceleration of gravity, and h is the height. Please follow the detailed steps in the comments of the JavaScript file. To be simple, assume the user will enter the number correctly, validation of the data is not required here.

5. [7 points] Write a function compareFreeFallTime() that compare the free fall time of objects on different planet by using the function. Please follow the detailed steps in the comments of the JavaScript file. To be simple, assume the user will enter the number correctly, validation of the data is not required here. Hint: toPrecision() method can be used to specify the precision of a floating point number.

The sample users' input and the result should look like the following screenshots.

| This page says                         |                         |        |
|--|-------------------------|--------|
| Enter the name of the first planet.    |                         |        |
| Earth                                  |                         |        |
|  |                         |        |
|  | ОК                      | Cancel |
|  |                         |        |
| This page says                         |                         |        |
| Enter the height of the free fall in r | meters on planet Earth  |        |
| 100                                    |                         |        |
|  | au.                     |        |
|  | ОК                      | Cancel |
|  |                         |        |
|  |                         |        |
| This page says                         |                         |        |
| Enter the initial downward velocity    | in meters/sec on planet | Earth  |
|  |                         |        |



## **Submission:**

Please ask the instructor or TA to **mark** the part 1 before you leave the lab. Create a folder that contains the HTML and JavaScript files. Zip the folder and submit to Brightspace. Please include both part 1 and 2 in your final submission.