Kata 11 - Bouncy Castles

Assignment

45 - 90 minutes

Status | Complete

STRETCH ACTIVITY
This activity is marked as stretch. We strongly suggest you come back to it if/when you've completed all the core exercises for the prep course.

There's a new attraction at this year's Codeville festival. The organizers have decided to bring in several inflatable attractions, but they have no clue how to much blow them up. Each attraction needs to be pumped to a precise volume to achieve maximum festival fun!

The attractions are each made up of a combination of several different shapes: cones, spheres and prisms. For example, the giant inflatable duck is made up of two spheres (the body and head) and a cone (the beak) 🦢.

Each shape has a different calculation for determining volume, so we'll need to create a few functions that will help us figure out the volume of the various inflatable attractions.

In this challenge, we'll need to implement four functions.

The first three will calculate the volume of the individual shapes:

- `sphereVolume()`will calculate the volume of a sphere given a radius
- `coneVolume()` will calculate the volume of a cone given a radius and a height
- `prismVolume()` will calculate the volume of a prism given a height, a width, and a depth

ℹ️ Don't worry about getting the answers to the *perfect* precision, just check to see that you're *close*.

ℹ️ We can find the formulas for calculating the volume of a sphere, cone, and prism online.

The fourth function, `totalVolume()`, will receive an array containing the different shapes that make up a single attraction. The totalVolume function should use the previous three functions to calculate the total volume of an attraction.

👉 Implement the functions one by one. The example inputs and outputs below will help you check that each function is correct.

Input

```
// Use the value below whenever you need the value of Pi
const PI = 3.14159 ;

const sphereVolume = function (radius) {
  // Code here!
}

console.log(4186 < sphereVolume(10) && sphereVolume(10) < 4189);

const coneVolume = function (radius, height) {
  // And here!
}

console.log(45 < coneVolume(3, 5) && coneVolume(3, 5) < 49);

const prismVolume = function (height, width, depth) {
  // Probably here too!
}

console.log(prismVolume(3, 4, 5) === 60);

const totalVolume = function (solids) {
  // Code here? Yup!
}

const largeSphere = {
  type: 'sphere',
  radius: 40
}

const smallSphere = {
  type: 'sphere',
  radius: 10
}

const cone = {
  type: 'cone',
  radius: 3,
  height: 5
}

const duck = [
  largeSphere,
  smallSphere,
  cone
]

console.log(272000 < totalVolume(duck) && totalVolume(duck) < 275000);
```

Expected Output

```
true
true
true
true
```

See some members of the Lighthouse Labs family pair program the solution to Challenge 20 below:

21-Day Coding Challenge: Challenge 20 Tutorial

Submit Your Work

- Browse to gist.github.com and create a new gist.
- Copy-and-paste your code into the form
- Name the gist and the file appropriately and click `Create secret gist`.
- Finally, mark this activity as completed (at the bottom of this page) and please copy/paste the *entire* browser URL for your gist (from *gist.github.com*) into the text field.

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https://gist.github.com/sa | ✖ Cancel Submission

Previous
Kata 10 - Multiplication Table (Stretch)

Next
Kata 12 - The Great Codeville Bake-off (Stretch)

How well did you understand this content?

Thank you for your feedback

Totally got it!

Please give us some written insight into your feedback

Prep Work

6: Katas

6 hrs ***+ 29 hrs stretch*** 🏆

- Katas ✓
- Kata 1 - Sum the Largest Numbers ✓
- Kata 2 - Conditional sums ✓
- Kata 3 - Vowels ✓
- Kata 4 - Instructors Names ✓
- Kata 5 - Percent Encoded String ✓
- Kata 6 - SmartParking ✓
- Kata 7 - In the Air Tonight ✓
- *Kata 8 - Repeating Numbers* ✓
- *Kata 9 - Case Maker* ✓
- *Kata 10 - Multiplication Table* ✓
- *Kata 11 - Bouncy Castles* ✓
- *Kata 12 - The Great Codeville Bake-off* ✓
- *Kata 13 - Talking Calendar* ✓
- *Kata 14 - Change Calculator* ✓
- *Kata 15 - Organizing Instructors* ✓
- *Kata 16 - Case Maker II* ✓
- *Kata 17 - JS Object From URL Encoded String* ✓
- *Kata 18 - Square Code* ✓
- *Kata 19 - Queen Threat Detector* ✓
- *Kata 20 - Taxicab Geometry* ✓
- *Kata 21 - Number Guesser* ✓

7: Stretch Project

8: The Lab Manual

9: Day One Prep

10: Collab Tools Setup