

Program - 1:

Write a function for given formula:

$$\text{answer} = \sqrt[n]{|z|} \cdot e^{i\left(\frac{\theta + 2k\pi}{n}\right)}$$

Input: n, z, i, k, theta

Output: answer

Program - 2:

Create two arrays one containing numbers from 0-9 and the second containing letters from a-e. Create 10 random pairs of 3 alphanumeric and store them in an array.

Input:

numberArray = [0,1,2,3,4,5,6,7,8,9]

letterArray = ['a','b','c','d','e']

Output:

[5ab, ba6, 23a, ..., ec0]

Program - 3:

Take two input array and Create final array of 100 random JSON elements.

Each elements contains three value:

Category: Random from given input category array

Age: Random from given input age array

Visitors: Any random number between 0 to 100

Fixed Input:

```
var category = [
  "movie",
  "news",
  "education",
  "sports ",
  "politics"
]
var age = [
  "teenager",
  "adult"
]
```

Expected output:

(Following Example contains only 3 elements, expected output is a total 100 elements.)

```
[
  { age: 'teenager', category: 'education', visitors: 91 },
  { age: 'teenager', category: 'movie', visitors: 83 },
  ...
  { age: 'teenager', category: 'politics', visitors: 65 }
]
```

Program - 4:

Take **output of Program - 3 as input** and get following output:

- Output contains json which takes a category as key and an array of two percent as value.
- First value is **rate of teenage** visitor of that category
- Second value is **rate of adult** visitor of that category

Input:

```
var data = [
  { age: 'teenager', category: 'education', visitors: 91 },
  { age: 'teenager', category: 'movie', visitors: 83 },
  ...
  { age: 'teenager', category: 'politics', visitors: 65 }
]
```

Output:

```
Ans = {
  movie: ["20%", "10%"],
  news: ["10%", "20%"],
  education: ["5%", "10%"],
  sports: ["10%", "5%"],
  politics: ["0%", "10%"],
}
```