Category: Medium

Competition: CSI KJSCE Code Wars 2017-18

Try it in the competition environment:

<https://www.hackerrank.com/contests/codewars2-warmup/challenges/business-startup>

Question:

Team KJSCE was helping business start-ups to decide percentage profit to spend on advertisements for maximum growth. The growth function was found to be :

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(a, b, k depend on conditions like field in which business is being done and current laws) Where x is the percentage of profit being spent on advertisement. To get maximum value of growth the function was differentiated and equated to 0 hence the following expression was obtained:

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The business corporations needed an accuracy of 6 decimal points as some of them were dealing with billions of rupees. Unfortunately calculators and other sources weren’t accurate enough. Help the team find the value of x representing percentage to be invested.

Input:

a and b are non-negative real numbers less than or equal to 10.

k is a real number between -10^5 and 10^5

Output:

Give the percentage of profit that needs to be invested in advertisement with an accuracy of 6 decimal places. (DO USE ROUNDING OFF from 7th to 6th decimal place) Obviously it should always lie between 0 and 100 as it is a percentage value. Rounding off rule: After removing a digit >= 5 at 7th decimal place, add 1 to 6th decimal place, truncate otherwise.

Try these cases:

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 1 -100 | 50.0 |
| 2 7 -10000 | 3.726853 |
| 3 3 5 | 0.0 |
| 2 1 -12 | 3.0 |
| 1 1 -10000 | 100.0 |
| 5 5 25 | 0.0 |
| 10 10 -12345 | 2.393569 |
| 1.5 1.5 -150 | 17.784466 |
| 3 3 -0.64 | 0.68399 |
| 0.8 0.3 0.0001 | 0.0 |
| 3.1234 3.4567 -0.8899 | 0.781617 |