GE23131-Programming Using C-2024

Quiz navigation

1 2

Show one page at a time

Finish review

Status	Finished
Started	Monday, 13 January 2025, 10:23 AM
Completed	Monday, 13 January 2025, 10:55 AM
Duration	31 mins 25 secs

Question **1**

Correct

Marked out of 1.00

Flag question

You are a bank account hacker. Initially you have 1 rupee in your account, and you want exactly ***N*** rupees in your account. You wrote two hacks, first hack can multiply the amount of money you own by 10, while the second can multiply it by 20. These hacks can be used any number of time. Can you achieve the desired amount ***N*** using these hacks.

Constraints:

1<=T<=100

1<=N<=10^12

Input

· The test case contains a single integer N.

Output

For each test case, print a single line containing the string "1" if you can make exactly N rupees or "0" otherwise.

SAMPLE INPUT

1

SAMPLE OUTPUT

1

SAMPLE INPUT

2

SAMPLE OUTPUT

0

Answer: (penalty regime: 0 %)

Reset answer

```
/* The function accepts INTEGER n as para

*/

int myFunc(int n) {

// If n is less than 1, it's impossib

if (n <= 0) {

return 0;

}

// Working backwards from n to 1 by

while (n > 1) {

// If divisible by 20, divide by
if (n % 20 == 0) {

n /= 20;

}

// If divisible by 10, divide by

else if (n % 10 == 0) {

n /= 10;

}

// If not divisible by either 10

else {

return 0;

}

}

// If we reached exactly 1, it's poss
return (n == 1);

}
```

	Test	Expected	Got	
✓	printf("%d", myFunc(1))	1	1	✓
✓	printf("%d", myFunc(2))	0	0	✓
✓	printf("%d", myFunc(10))	1	1	✓
✓	printf("%d", myFunc(25))	0	0	✓

✓	printf("%d", myFunc(200))	1	1	✓

Passed all tests! ✓

Question **2**

Correct

Marked out of 1.00

Flag question

Find the number of ways that a given integer, ***X***, can be expressed as the sum of the N^{th} powers of unique, natural numbers.

For example, if ***X = 13*** and ***N = 2***, we have to find all combinations of unique squares adding up to ***13***. The only solution is $2^2 + 3^2$.

Function Description

Complete the powerSum function in the editor below. It should return an integer that represents the number of possible combinations.

powerSum has the following parameter(s):

X: the integer to sum to

N: the integer power to raise numbers to

Input Format

The first line contains an integer ***X***.

The second line contains an integer ***N***.

Constraints

1 ≤ X ≤ 1000

2 ≤ N ≤ 10

Output Format

Output a single integer, the number of possible combinations calculated.

Sample Input 0

10

2

Sample Output 0

1

Explanation 0

If ***X = 10*** and ***N = 2***, we need to find the number of ways that ***10*** can be represented as the sum of squares of unique numbers.

$$10 = 1^2 + 3^2$$

This is the only way in which ***10*** can be expressed as the sum of unique squares.

Sample Input 1

100

2

Sample Output 1

3

Explanation 1

$$100 = (10^2) = (6^2 + 8^2) = (1^2 + 3^2 + 4^2 + 5^2 + 7^2)$$

Sample Input 2

100

3

Sample Output 2

1

Explanation 2

100 can be expressed as the sum of the cubes of ***1, 2, 3, 4***.

(1 + 8 + 27 + 64 = 100). There is no other way to express ***100*** as the sum of cubes.

Answer: (penalty regime: 0 %)

Reset answer

```
/*

* Complete the 'powerSum' function below

*

* The function is expected to return an
```

```c
* The function accepts following paramet

* 1. INTEGER X

*

2. INTEGER n

*/

#include <stdio.h>

#include <math.h>

int powerSum(int x, int m, int n) {

if (x == 0)

return 1;

if (x < 0 || pow(m, n) > x)

return 0;

return powerSum(x - pow(m, n), m + 1, n) + powerSum(x, m + 1, n);

}
```

	Test	Expected	Got	
✓	printf("%d", powerSum(10, 1, 2))	1	1	✓

Passed all tests! ✓

Finish review