



# The Power Sum

locked



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Problem

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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

- $1 \leq X \leq 1000$
- $2 \leq N \leq 10$

## 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.





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