



# Marc's Cakewalk



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Problem

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Marc loves cupcakes, but he also likes to stay fit. He eats  $n$  cupcakes in one sitting, and each cupcake  $i$  has a calorie count,  $c_i$ . After eating a cupcake with  $c$  calories, he must walk at least  $2^j \times c$  (where  $j$  is the number cupcakes he has already eaten) miles to maintain his weight.

Given the individual calorie counts for each of the  $n$  cupcakes, find and print a *long integer* denoting the minimum number of miles Marc must walk to maintain his weight. Note that he can eat the cupcakes *in any order*.

## Input Format

The first line contains an integer,  $n$ , denoting the number of cupcakes.

The second line contains  $n$  space-separated integers describing the respective calorie counts of each cupcake,  $c_0, c_1, \dots, c_{n-1}$ .

## Constraints

- $1 \leq n \leq 40$
- $1 \leq c_i \leq 1000$

## Output Format

Print a long integer denoting the minimum number of miles Marc must walk to maintain his weight.

## Sample Input 0

```
3
1 3 2
```

## Sample Output 0

```
11
```

## Explanation 0

Let's say the number of miles Marc must walk to maintain his weight is *miles*. He can minimize *miles* by eating the  $n = 3$  cupcakes in the following order:

1. Eat the cupcake with  $c_1 = 3$  calories, so *miles* =  $0 + (3 \cdot 2^0) = 3$ .
2. Eat the cupcake with  $c_2 = 2$  calories, so *miles* =  $3 + (2 \cdot 2^1) = 7$ .
3. Eat the cupcake with  $c_0 = 1$  calories, so *miles* =  $7 + (1 \cdot 2^2) = 11$ .

We then print the final value of *miles*, which is **11**, as our answer.



Submissions: 1913

Max Score: 15

Difficulty: Easy

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C#

```
1 using System;
2 using System.Collections.Generic;
3 using System.IO;
4 using System.Linq;
5 class Solution {
6
7     static void Main(String[] args) {
8         int n = int.Parse(Console.ReadLine());
9         long[] a = Array.ConvertAll(Console.ReadLine().Split(' '), e => long.Parse(e));
10        //int[] a = { 1, 3, 2 };
11        Array.Sort(a);
12        long miles = 0;
13        long cupcakes = 0;
14        for (int i = a.Length - 1; i >= 0; i--)
15        {
16            miles += a[i] * (long)Math.Pow(2, cupcakes++);
17        }
18        Console.WriteLine(miles);
19    }
20 }
21
```

Line: 18 Col: 38

[Upload Code as File](#)☐ Test against custom input[Run Code](#)[Submit Code](#)

## Congrats, you solved this challenge!

✓ Test Case #0

✓ Test Case #1

✓ Test Case #2

✓ Test Case #3

✓ Test Case #4

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