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LIVE EVENTS

## Monk and his Father

Attempted by: 525 / Accuracy: 25% / Maximum Score: 20 ★★★★★ 6 Votes

Tag(s): Approved, Bit manipulation, Easy, approved, ready

PROBLEM

EDITORIAL

MY SUBMISSIONS

Monk loves cycling. He wants to buy his favorite bicycle costing  $P$  dollars. But his father won't give him the money so easily as he wants Monk to understand the importance of money. So they made a deal.

Monk starts with Zero dollars in his piggybank. On each day, Monk will go to another city where God of Money lives, and will get as much as dollars he wants from him.

At the end of each day, Monk brings the piggybank to his father, who counts the money in the piggybank and deposits as much more money as the amount that is present in the piggybank, which eventually doubles the amount in piggybank. As a result, the money in the piggybank keeps growing. Note that, his father does not deposit any money if the piggybank is empty.

Monk wants to ask God of Money for as minimum dollars as possible. Find the minimum dollars that Monk has to ask from God of Money, so that he has **exactly**  $P$  dollars in his piggybank, irrespective of the number of days he takes.

### Input:

The first line consists of integer  $T$ .  $T$  testcases follow. The first line of each testcase consists of an integer  $P$ , denoting the cost of the bicycle.

### Output:

For each testcase, print the answer in a single line.

### Constraints:

$$1 \leq T \leq 10$$

$$1 \leq P \leq 10^{18}$$

#### SAMPLE INPUT

```
2
1
2
```

#### SAMPLE OUTPUT

```
1
1
```

### Explanation

In the second testcase, Monk asks for 1 dollar from God of Money on the first day. He takes the piggybank with 1 Dollar to his father who deposits 1 Dollar, making a total of 2 Dollars i.e. cost of the bicycle.

**Time Limit:** 1.0 sec(s) for each input file.

**Memory Limit:** 256 MB

**Source Limit:** 1024 KB

**Marking Scheme:** Marks are awarded when all the testcases pass.

**Allowed Languages:** C, C++, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, R(RScript), Racket, Ruby, Rust, Scala, Scala 2.11.8, Swift, Visual Basic

## CODE EDITOR

Enter your code or [Upload your code](#) as file.

Save

C++ (g++ 4.8.2)



```
1 #include <iostream>
2 using namespace std;
3 int count_one (long int);
4 int main()
5 {
6     int t;
7     cin>>t;
8     while(t--) {
9         long int price;
10        cin>>price;
11        cout<<count_one(price)<<endl;
12    }
13 }
14 return 0;
15 }
```

```
16
17 int count_one (long int n) {
18     int count;
19     while( n )
20     {
21         n = n&(n-1);
22         count++;
23     }
24     return count;
25 }
```

3:26

☒ Provide custom input

COMPILE & TEST

SUBMIT

Submission ID: 8171433 / 2 seconds ago

RESULT: Accepted

| Score | Time (sec) | Memory (KiB) | Language |
|-------|------------|--------------|----------|
| 20.0  | 0.70591    | 64           | C++      |

| Input    | Result | Time (sec) | Memory (KiB) | Score | Your Output | Correct Output | Error Log | Diff |
|----------|--------|------------|--------------|-------|-------------|----------------|-----------|------|
| Input #1 |        | 0.100965   | 64           | 5     |             |                |           |      |
| Input #2 |        | 0.100909   | 64           | 5     |             |                |           |      |
| Input #3 |        | 0.100763   | 64           | 15    |             |                |           |      |
| Input #4 |        | 0.100596   | 64           | 15    |             |                |           |      |
| Input #5 |        | 0.100825   | 64           | 20    |             |                |           |      |
| Input #6 |        | 0.100966   | 64           | 20    |             |                |           |      |
| Input #7 |        | 0.100885   | 64           | 20    |             |                |           |      |

Compilation Log

No compilation log for this submission.

Press Ctrl-space for autocomplete suggestions.

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