

## 13217 Amazing Function

The function  $F(n)$  is defined as:

$$F(0) = 2^{0.5} + 3^{0.5} + 6^{0.5} \quad (1)$$

$$F(n) = (F(n-1)^2 - 5) / (2 * F(n-1) + 4) \quad (2)$$

Given  $N$ , find  $F(N)$ . Note that  $N$  can be very large!

### Input

A number of test cases ( $\leq 1000$ ), one per line, with the number of value of integer  $N$  ( $0 \leq N \leq 10^{1500}$ ).

### Output

For each test case, output  $F(N)$  on a single line, rounded to exactly 10 digits after the decimal.

### Sample Input

```
0
1
```

### Sample Output

```
5.5957541127
1.7320508076
```