2115 An Inductively-Defined Function

Consider the function f which is inductively defined on the positive integers, as follows:

$f(1) = 1$
$f(2n) = n$
$f(2n+1) = f(n) + f(n+1)$

Given a positive integer value for n (greater than or equal to 1), find the value of $f(n)$.

Input

The input consists of a sequence of positive integer values for n followed by '`-1`'. The integers are preceded and/or followed by whitespace (blanks, tabs, and ends of lines).

Output

For each positive integer n, display the value of n and the value of $f(n)$. Use the format shown in the example below, and leave a blank line between the output for each value of n.

Sample Input

```
  2    53

          153
-1
```

Sample Output

```
f(2) = 1

f(53) = 27

f(153) = 77
```