

Quiz navigation

1

2

Show one page at a time

Finish review

Status	Finished
Started	Monday, 13 January 2025, 9:48 AM
Completed	Monday, 13 January 2025, 10:01 AM
Duration	13 mins 35 secs

Question 1

Correct

Marked out of 1.00

Flag question

A binary number is a combination of 1s and 0s. Its  $n^{\text{th}}$  least significant digit is the  $n^{\text{th}}$  digit starting from the right starting with 1. Given a decimal number, convert it to binary and determine the value of the  $4^{\text{th}}$  least significant digit.

Example

number = 23

- Convert the decimal number 23 to binary number:  $23^{10} = 2^4 + 2^2 + 2^1 + 2^0 = (10111)_2$ .
- The value of the  $4^{\text{th}}$  index from the right in the binary representation is 0.

Function Description

Complete the function fourthBit in the editor below.

fourthBit has the following parameter(s):

int number: a decimal integer

Returns:

int: an integer 0 or 1 matching the 4th least significant digit in the binary representation of number.

Constraints

$0 \leq \text{number} < 2^{31}$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

The only line contains an integer, number.

Sample Case 0

Sample Input 0

STDIN Function

32 → number = 32

Sample Output 0

0

Explanation 0

- Convert the decimal number 32 to binary number:  $32^{10} = (100000)_2$ .
- The value of the 4th index from the right in the binary representation is 0.

#### Sample Case 1

#### Sample Input 1

#### STDIN Function

77 → number = 77

#### Sample Output 1

1

#### Explanation 1

- Convert the decimal number 77 to binary number:  $77_{10} = (1001101)_2$ .
- The value of the 4th index from the right in the binary representation is 1.

Answer: (penalty regime: 0 %)

Reset answer

```

1
2
3 int fourthBit(int number)
4 {
5     int binary[32];
6     int i=0;
7     while(number>0)
8     {
9         binary[i]=number%2;
10        number/=2;
11        i++;
12    }
13    if(i>=4)
14    {
15        return binary[3];
16    }
17    else
18        return 0;
19 }
20

```

	Test	Expected	Got	
✓	printf("%d", fourthBit(32))	0	0	✓
✓	printf("%d", fourthBit(77))	1	1	✓

Passed all tests! ✓

#### Question 2

Correct

Marked out of 1.00

Flag question

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number) and then return the  $p^{\text{th}}$  element of the list, sorted ascending. If there is no  $p^{\text{th}}$  element, return 0.

#### Example

$n = 20$

$p = 3$

The factors of 20 in ascending order are {1, 2, 4, 5, 10, 20}. Using 1-based indexing, if  $p = 3$ , then 4 is returned. If  $p > 6$ , 0 would be returned.

#### Function Description

Complete the function pthFactor in the editor below.

pthFactor has the following parameter(s):

int n: the integer whose factors are to be found

int p: the index of the factor to be returned

Returns:

Returns:  
int: the long integer value of the  $p^{\text{th}}$  integer factor of  $n$  or, if there is no factor at that index, then 0 is returned

Constraints

$$1 \leq n \leq 10^{15}$$

$$1 \leq p \leq 10^9$$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

The first line contains an integer  $n$ , the number to factor.

The second line contains an integer  $p$ , the 1-based index of the factor to return.

Sample Case 0

Sample Input 0

STDIN      Function

-----

10    →     $n = 10$

3     →     $p = 3$

Sample Output 0

5

Explanation 0

Factoring  $n = 10$  results in  $\{1, 2, 5, 10\}$ . Return the  $p = 3^{\text{rd}}$  factor, 5, as the answer.

Sample Case 1

Sample Input 1

STDIN      Function

-----

10    →     $n = 10$

5     →     $p = 5$

Sample Output 1

0

Explanation 1

Factoring  $n = 10$  results in  $\{1, 2, 5, 10\}$ . There are only 4 factors and  $p = 5$ , therefore 0 is returned as the answer.

Sample Case 2

Sample Input 2

STDIN      Function

-----

1     →     $n = 1$

1     →     $p = 1$

Sample Output 2

1

Explanation 2

Factoring  $n = 10$  results in  $\{1, 2, 5, 10\}$ . Return the  $p = 3^{\text{rd}}$  factor, 5, as the answer.

Sample Case 1

Sample Input 1

STDIN      Function

10    →     $n = 10$

5     →     $p = 5$

Sample Output 1

0

Explanation 1

Factoring  $n = 10$  results in  $\{1, 2, 5, 10\}$ . There are only 4 factors and  $p = 5$ , therefore 0 is returned as the answer.

Sample Case 2

Sample Input 2

STDIN      Function

1     →     $n = 1$

1     →     $p = 1$

Sample Output 2

1

Explanation 2

Factoring  $n = 1$  results in  $\{1\}$ . The  $p = 1^{\text{st}}$  factor of 1 is returned as the answer.

Answer: (penalty regime: 0 %)

Reset answer

```
1 long pthFactor(long n, long p)
2 {
3     int count=0;
4     for(long i=1;i<=n;++i)
5     {
6         if(n%i==0)
7         {
8             count++;
9             if(count==p)
10            {
11                return i;
12            }
13        }
14    }
15    return 0;
16 }
```

	Test	Expected	Got
✓	<code>printf("%ld", pthFactor(10, 3))</code>	5	5
✓	<code>printf("%ld", pthFactor(10, 5))</code>	0	0
✓	<code>printf("%ld", pthFactor(1, 1))</code>	1	1

Passed all tests! ✓

Finish review