**Find the parity of an unsigned integer**

[bit](http://www.practice.geeksforgeeks.org/tag-page.php?tag=bit&isCmp=0)[cryptography](http://www.practice.geeksforgeeks.org/tag-page.php?tag=cryptography&isCmp=0)[maths](http://www.practice.geeksforgeeks.org/tag-page.php?tag=maths&isCmp=0)

Given an unsigned integer, find it's parity. Parity of a number refers to whether it contains an odd or even number of 1-bits. The number has “odd parity”, if it contains odd number of 1-bits and is “even parity” if it contains even number of 1-bits.

**Input:**

2  
13  
9  
**Output:**

odd  
even

**Constraints:**

1<=t<=100  
1<=n<=100  
**Example:**

n = 13 (1101)   parity = 0

n = 13 & 12  = 12 (1100)   parity = 1

n = 12 & 11 = 8  (1000)   parity = 0

n = 8 & 7 = 0  (0000)    parity = 1

\*\*For More Examples Use Expected Output\*\*

<http://www.practice.geeksforgeeks.org/problem-page.php?pid=395>

#include <iostream>

#include <stdio.h>

#include <math.h>

using namespace std;

int main() {

int t;

scanf("%d", &t);

while(t--) {

int n;

scanf("%d", &n);

int cont =0;

while(n > 0) {

if(n %2 == 1) {

cont++;

}

n/=2;

}

if(cont %2 ==0) {

printf("even\n");

}else{

printf("odd\n");

}

}

system("pause");

return 0;

}