

WEEK 7

Take a number, reverse it and add it to the original number until the obtained number is a palindrome.

Constraints

$1 \leq \text{num} \leq 999999999$

Sample Input 1

32

Sample Output 1

55

For example:

Input	Result
32	55
1234	5555

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int rev(int n) {
3     int rev=0;
4     while(n>0) {
5         rev=rev*10+n%10;
6         n/=10;
7     }
8     return rev;
9 }
10 int ispalin(int n) {
11     int temp=n,rev=0;
12     while(temp>0) {
13         rev=rev*10+temp%10;
14         temp/=10;
15     }
16     if(n==rev) return 1;
17     else return 0;
18 }
19 int main() {
20     int n;
21     scanf("%d",&n);
22     while(!ispalin(n)) {
23         n=n+rev(n);
24     }
25     printf("%d",n);
26     return 0;
27 }
```

	Input	Expected	Got	
✓	32	55	55	✓
✓	1234	5555	5555	✓

Passed all tests! ✓

Write a program to find if a given number N can be expressed as a sum of two prime numbers.

Note: YOU MUST OPTIMIZE the logic to find whether a number is prime or not, as very large prime numbers are provided as input. If the logic is not optimized your program will NOT get executed within the given time limit.

Input Format:

First line contains total number of test cases, denoted by T.

Next T lines will contain the value of N for each test case.

Output Format:

T lines containing either yes or no.

Boundary Conditions / Constraints:

$1 \leq T \leq 25$

$3 \leq N \leq 10^9$

```

1  #include<stdio.h>
2  #include<math.h>
3  int isprime(int n) {
4      if(n==2) return 1;
5      for(int i=2;i<=ceil(sqrt(n));i++) {
6          if(n%i==0) return 0;
7      }
8      return 1;
9  }
10 int main() {
11     int t;
12     scanf("%d",&t);
13     for(int w=0;w<t;w++) {
14         int n,c=0;
15         scanf("%d",&n);
16         for(int i=2;i<=ceil(n/2);i++) {
17             if(isprime(i) && isprime(n-i)) {
18                 c=1;
19                 break;
20             }
21         }
22         if(c) printf("yes\n");
23         else printf("no\n");
24     }
25     return 0;
26 }
```

	Input	Expected	Got	
✓	5	yes	yes	✓
	20	yes	yes	
	12	no	no	
	23	yes	yes	
	34	yes	yes	
	16			

Passed all tests! ✓

Write a C program that given an integer 'n', prints the number of integers that are less than or equal to 'n' and co-prime to 'n'

Two integers a and b are said to be relatively prime or co-prime if the only positive integer that evenly divides both of them is 1. That is, the only common positive factor of the two numbers is 1. This is equivalent to their greatest common divisor being 1.

Input Format:

One line containing the value of 'n', where $1 \leq n \leq 10,000$

Output Format:

One line containing the number of integers that are co-prime to n and less than or equal to 'n'

```

1  #include<stdio.h>
2  int iscoprime(int a,int b) {
3      for(int i=2;i<=a;i++) {
4          if(a%i==0 && b%i==0) return 0;
5      }
6      return 1;
7  }
8  int main() {
9      int n,c=0;
10     scanf("%d",&n);
11     for(int i=1;i<n;i++)
12         if(iscoprime(i,n)) c++;
13     printf("%d",c);
14     return 0;
15 }
```

	Input	Expected	Got	
✓	10	4	4	✓
✓	23	22	22	✓
✓	11	10	10	✓

Passed all tests! ✓