

## Task 05: **A Stormtrooper's *Prime* Concern**

**[85 points]**

Darth Vader has come up with what he deems to be a fair way to decide which Stormtroopers will go into battle. He comes up with random numbers, and the Stormtroopers have to quickly determine if they are prime or not prime. If they guess correctly, they get to stay on the Death Star doing office work. If they guess incorrectly, they go out into the field.



### **Problem Statement**

Help Vader quickly determine if a number is prime or not so he can select his stormtroopers.

### **Input Format**

The first line contains  $T$ , which denotes the number of test cases. This is followed by  $T$  lines, each containing a positive integer  $N$ .

### **Input Constraints**

- $0 < N < 100,000,000$

### **Output Format**

For every input  $T$ , output `"true"` if  $N$  is prime and `"false"` otherwise.

### **Sample Input**

```
2
18
419
```

### **Sample Output**

```
false
true
```