Query on an array II

Adeeb is the promising programmer of BSMRSTU 🙂. One day he was solving a problem of RMQ(Range Sum Query). The solution he was written is given below:


```
int n, q ;

scanf("%d %d",&n, &q) ;

int a[n];

for(int i = 0 ; i < n ; ++i){

    scanf("%d",&a[i]) ;

}

int l, r ;

while(q--){

    scanf("%d %d",&l, &r) ;

    int res = 0 ;

    for(int i = l ; i <= r ; ++i){

        res += a[i] ;

    }

    printf("%d\n",res);

}
```


As long as the the constraint of the problem was sufficiently small, his solution was correct and got accepted. But now, the constraint of the problem has been increased.
Today, he is trying to solve the newly modified problem by submitting the above-written code. But Alas! It's getting TLE(Time Limit Exceeded) verdict 😟 . He became disappointed. He has no idea without the above-written code to solve the problem.
As a friend of Adeeb, you want to help him and he promised that if you help him to solve the problem then he will give you some candies 🙂.

Input

There will be T test cases.

In every test case, you will be given n and q as the input.

The next line will contain n space separated integers, the value of the array a.

Constraint:

$1 <= T <= 10$

$1 <= n, q <= 10^5$

$1 <= l <= r <= n, 1 <= a_i <= 10^9$.

Output

In every test case, print q lines of output, one integer for the corresponding query.

Example

Input:

1
5 2

1 2 3 4 5

1 4

2 5

Output:
10

14