Trader Profit

Mike is a stock trader and makes a profit by buying and selling stocks. He buys a stock at a lower price and sells it at a higher price to book a profit. He has come to know the stock prices of a particular stock for n upcoming days in future and wants to calculate the maximum profit by doing the right transactions *(single transaction = buying + selling)*. Can you help him maximize his profit?

Note: A transaction starts after the previous transaction has ended. Two transactions can't overlap or run in parallel.

The stock prices are given in the form of an array A for n days.

Given the stock prices and a positive integer k, find and print the maximum profit Mike can make in at most k transactions.

For example, $5 - day$ stock prices are given as $12, 5, 10, 7, 17$, and $k = 1$. For one transaction, maximum profit is 12 when stock is purchased on day 2 and sold on day 5.

Input Format

The first line of input contains an integer q denoting the number of queries.

The first line of each test case contains a positive integer k, denoting the number of transactions.

The second line of each test case contains a positive integer n, denoting the length of the array A.

The third line of each test case contains n space-separated positive integers, denoting the prices of each day in the array A.

Constraints

- $1 \leq q \leq 100$
- $0 < k < 10$
- $2 \leq n \leq 30$
- $0 \leq$ elements of array A ≤ 1000

Output Format

For each query print the maximum profit earned by Mike on a new line.

Sample Input 0

```
3
2
6
10 22 5 75 65 80
3
4
20 580 420 900
1
5
100 90 80 50 25
```

Sample Output 0

```
87
1040
0
```

Explanation 0

Output 1: Mike earns 87 as sum of 12 and 75 i.e. Buy at price 10, sell at 22, buy at 5 and sell at 80
Output 2: Mike earns 1040 as sum of 560 and 480 i.e. Buy at price 20, sell at 580, buy at 420 and sell at 900
Output 3: Mike cannot make any profit as selling price is decreasing day by day. Hence, it is not possible to earn anything.