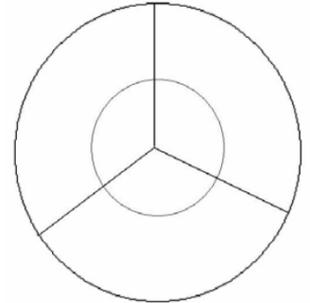


3815 Challenging “Butts”

Darts (Some historical records suggest that the first standard dartboards were the bottoms of wine casks, hence the game’s original name of “butts”.) is a very popular game in which darts are thrown at a circular target (*dart board*) hung on a wall. Dart boards are usually made of sisal fibers or boar bristles, low quality boards are sometimes made of paper. A regulation board is 45.72 cm in diameter, and is divided into sectors. Each sector is lined with metal wire. The numbers indicating the various scores of sectors on the dart board are normally made of wire, especially on tournament-quality boards, but may be printed on the board instead. In the standard game, the dart board is hung so that the *bulls-eye* is 1.73 m from the floor, eye-level for a six foot person. The *oche*, the line behind which the player must stand, is 2.37 m from the face of the board.



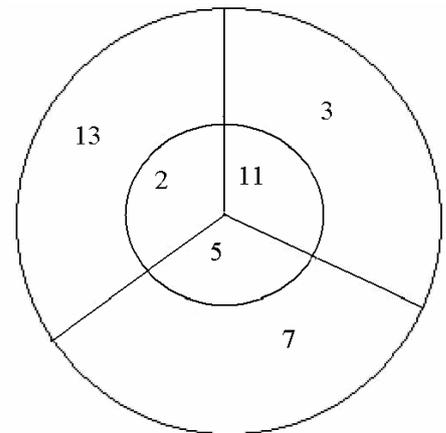
When playing darts players often aim at the high scoring sectors, but for ordinary players it is hard to land a dart on the desired sector. The risk of aiming at a sector can thus be measured by the difference between the scores of adjacent sectors, where two sectors are said to be adjacent if they share an edge or an arc. A large such difference increases the risk and makes the game more challenging. The total risk of a dart board is the sum over the risks between all adjacent sectors. We have been asked by the sponsor of a programming competition to design a new, and challenging, dart board to occupy the touchy coaches during the contest.

The new dart board design consists of a circle that is divided into N sectors, $N \geq 3$, by lines running from the centre of the circle to its perimeter and a smaller concentric circle that subdivides each sector into two areas: as shown in the sketch for N equal to three (3).

Your task is to write a program to read $2N$ positive integer values and assign them to the $2N$ areas of the new dart board design such that the total risk is maximized.

An example of such an assignment is in the figure on the right:

The total risk of this dart board design with “6” areas is 59.



Input

The first line of the input contains a single integer between 1 and 1000, inclusive, which is the number of dart boards that follow. The description of each dart board consists of two lines:

1. The first line consists of an integer N , $300 \geq N \geq 3$, which identifies the number of sectors on the board.
2. The second line consists of $2N$ positive integers, separated by single spaces, which represent the scores. Each integer is less than or equal to 10000.

Output

For each dart board the output is an integer, on a separate line, which represents the maximum risk of the board.

Sample Input

```
4
3
2 3 5 7 11 13
4
2 3 5 7 17 19 23 29
8
2 6 7 3 2 4 99 30 28 56 74 1 35 10 10 48
7
2 6 7 3 2 4 99 30 28 74 35 10 10 48
```

Sample Output

```
59
213
1035
870
```