# 4684 Love for Pizza

My brother and I love pizza. My brother ordered a pizza today with a number of toppings. Some of those toppings I love, like mushrooms, while there are some others that I hate, like olives. Even among the toppings I like (or the ones that I don't like), I like some more than the other, depending on the amount.

Now my brother will let me take a wedge of any size from the pizza. This means I am allowed to make two cuts from the center of the pizza to its circumference, and can keep one of the two resulting pieces. If either cut goes through a topping, the entire topping belongs to that piece which contains the centre of the topping. I am not allowed to cut exactly through the centre of a topping. Each topping will thus remain entirely on one of the pieces. I would like to cut and choose the best piece possible for myself.

## Input

Input contains multiple test-cases. The first line of the input contains $T$, the number of test cases, followed by $T$ testcases. The first line of each test case contains one integer $N$, the number of toppings. It is followed by $N$ lines containing three space-separated integers each. Each line described a single topping. The first integer denotes my $preference$ for the topping. The next two integers denote respectively the $x$ and $y$ co-ordinates of the centre of the topping.

## Output

Output a single line per test-case, indicating the sum of the preferences of all the toppings on the best piece. The best piece is the one that has the maximum sum possible.

**Constraints:**

- $1 \leq T \leq 25$
- $1 \leq N \leq 10^5$
- $-10^5 \leq preference \leq 10^5$
- The point $(x, y)$ will lie within the pizza, which is assumed to be a circle centered at $(0, 0)$ with a radius of $10^9$. The point will not be the centre itself.
- Multiple toppings may be centred at the same point.
- A set of test cases will not exceed 4MB in file size.

## Sample Input

```
3
2
-100 28335 972
200 16646 1307
3
7265 341 160
-1000 17646 24060
```

```
2735 26741 7225
4
-8609 7286 1522
9243 30219 184
7255 19082 16933
5317 6845 0
```

## Sample Output

```
200
10000
21815
```