

## Problem D - Dreams of Pizza

Daniel is having a nightmare about ACM practice. He ordered pizza and wings from PanaJohns but the every time he gets to the wings, everyone else has already eaten them!

Daniel knows that the pizza boxes are magical and by jumping inside them, it teleports him to a fixed place places far away and possibly times in the past or future! Each pizza box is located at a three dimensional coordinate (as Daniel can fly), and can only be used when all the pizza has been finished (since jumping into a pizza box that still contains pizza will make quite a mess).

Now Daniel has knows when each of the pizzas will be finished, and the destinations of where the pizza boxes will teleport him since he's be coming to a lot of these ACM practices. Can you help him figure out when the earliest time he can get to the chicken wings?

### Input

The first line contains a single integer,  $T$  specifying the number of test cases.

Each test case begins with a line containing two coordinate triples  $x_0, y_0, z_0$  and  $x_1, y_1, z_1$ , Daniel's starting coordinate and the coordinates of the box of chicken wings. The next line contains an integer  $n$  ( $0 \leq n \leq 50$ ) the number of magical pizza boxes. Then on each of the  $n$  lines that follow, one for each magical pizza box, are two coordinate triples  $x_s, y_s, z_s$  and  $x_t, y_t, z_t$ , the start and end points of the magical pizza boxes, as well as two integers  $t, d$  ( $-10^6 \leq t, d \leq 10^6$ ), the earliest time you can use the pizza box  $t$ , and the time shift  $d$  of going through the pizza box.

All coordinates are in meters and have absolute values smaller than or equal to  $10^4$ . No two points are the same.

Initially the time is zero, and travelling through a pizza box happens instantly. To get between two pizza boxes, the distance is defined as the Euclidean distance (square root the sum of squares of coordinate differences) rounded up to the nearest integer. Daniel has a speed of 1 meter per second in any direction.

### Output

For each test case, print a single integer, the earliest time in seconds Daniel can arrive at the box of chicken wings.

### Sample Input

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```
2
0 0 0 100 0 0
2
1 1 0 1 2 0 -100 -2
0 1 0 100 1 0 -150 10
0 0 0 10 0 0
1
5 0 0 -5 0 0 0 0
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### Sample Output

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-89
10
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