

One Punch Man

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Saitama is the most powerful hero alive. Having apparently trained himself to superhuman conditions, Saitama faces a self-imposed existential crisis, as he is now too powerful to gain any thrill from his heroic deeds. Every monster he faces, is killed with only one of his punches.

There are N groups of monsters on a line, i th of them is positioned at distance X_i from the beginning of that line and has V_i members. When Saitama punches the ground at P , all monsters within R vicinity of that punch (meaning from $P-R$ to $P+R$ both inclusive) are killed by the shockwave. Saitama is tired after all his hero duties. So he will punch at most K times. Can you help him figure out, what is the maximum number of monsters he can kill.

Input:

The first line contains number of test case T . Then T testcases follow. First line of each test case contains three integers N, R and k . Following N lines contains two space separated integers X_i and V_i .

Limits:

$$T \leq 10$$

$$1 \leq N \leq 10^5$$

$$1 \leq V_i \leq 10^4$$

$$1 \leq K \leq 50$$

For **Easy** Version:

$$0 \leq R, X_i \leq 10^4$$

For **Hard** Version:

$$0 \leq R, X_i \leq 10^8$$

Output:

For each test case, print a line "Case t: m" where t is the test case number and m is the the maximum number of monsters Saitama can kill.

Input	Output
2	Case 1: 130
4 3 1	Case 2: 23
6 10	

12 110	
19 100	
24 30	
5 3 2	
3 3	
5 2	
3 8	
10 5	
0 5	

Explanation of sample input:

In sample 1, Saitama can punch at position 21 or 22 to kill 130 monsters. If he punches at position 21 then the shockwave ranges from 18 to 24, killing monsters at 19 and 24. Similarly if he punches at 22 then then shockwave will kill from 19 to 25. Punch at no other position will kill more monsters.

In Sample 2 , Saitama can kill all monsters with 2 punches.

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