

Fighter Jet Target Locking

(Time limit 2 seconds)

A fighter jet will be able to lock a target that can be shot using a missile if its target is within a certain distance and a certain coordinate area. Although the pilot presses a firing button a missile will not be launched if the target hasn't been locked.



$T(x, y, z)$ are target coordinates where x and y are target's 2-dimensional (horizontal and vertical) projections on the radar monitor screen, and z is the target distance.

Range coordinates are squares with positions $P1(x_1, y_1)$ and $P2(x_2, y_2)$. Because the fighter jet can do acrobatic move like upside down, then $P1$ isn't always at top left and $P2$ isn't always at bottom right. The distance the missile can reach is j . Range coordinates and missile shooting range are always changing depending on many things like weather, airplane speed, wind direction, altitude, temperature, humidity etc.

You are required to create a system to assist the pilot by automatically locking the target and then telling him whether he can fire a missile or not, for each set of data T , $P1$, $P2$ and j .

Input

n
x y z x1 y1 x2 y2 j
...

where:

- number of data to proceed: $1 \leq n \leq 100000$
- target coordinates, coordinate range & distance: $0 \leq x, y, z, x1, y1, x2, y2, j \leq 1000$
- all data is in integer

Output

If goal can be locked & shot: 'shoot', but if the target can't be shot: 'hold'.

Sample input	Output for sample input
3 5 7 10 2 3 8 11 15 15 31 15 3 7 21 40 10 12 7 5 15 5 24 15 8	shoot hold hold