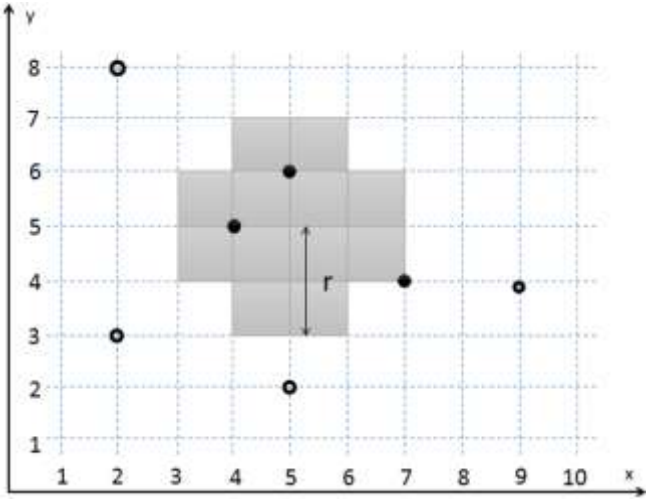
Problem 2 – Durts



Nakov and SoftUni team were bored and they decided to make a special game, called "Durts". The rules of the game were easy: all players throw one dart and if the dart get into the figure, the player takes a point. The shape of the figure represents a cross like the picture on the right. Your task is to write a program that calculates if the dart is in the figure.

Each game starts with given **coordinates of the center (C_X, C_Y)** of the figure, the **size r,** the **count n**, and **n coordinates (X, Y)** of the darts. See the figure with center (5, 5), r=2, and 7 darts to get a better idea.

Input

The input comes from the console. The first and the second numbers hold the coordinates **C_X and C_Y** of the center of the figure. The next two numbers are **r of figure** and the **count n**, followed by **n** coordinates **X** and **Y** of the thrown darts. All input numbers will be separated one from another by whitespace (one or more spaces / new lines). The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

Print at the console the result "**yes**" or "**no**" for each dart in the same order, each at a separate line.

Constraints

- The coordinates **C_X** and **C_Y** of the **center** and **darts** coordinates (**X**, **Y**) will be integers in range [-1000…1000].
- The **r** will be positive integer in the range [0…500].
- The **count n** will be **positive** integer in the range [0…20].
- Time limit: 0.3 sec. Memory limit: 16 MB.

Examples

Input	Output	Comments
5 5 2 7 2 8 2 3 4 5 5 2 5 6 7 4 9 4	no no yes no yes yes no	center = (5, 5) r = 2 n = 7 (2, 8) → no; (2, 3) → no; (4, 5) → yes; (5, 2) → no; (5, 6) → yes; (7, 4) → yes; (9, 4) → no
-3 6 5 8 -5 2 -5 1 10 1 9 1 1 4 6 6 -100 100 3 -3	yes yes no no yes no no no	center = (-3, 6) r = 5 8 = 7 (-5, 2) → yes; (-5,1) → yes; (10, 1) → no; (9,1) → no; (1, 4) → yes; (6, 6) → no; (-100, 100) → no; (3, -3) → no
5 16 2 4 3 3 5 14 6 7 8 6	no yes no no	center = (5, 16) r = 2 n = 4 (3, 3) → no; (5, 14) → yes; (6, 7) → no; (8, 6) → no