DMOPC '19 Contest 6 P1 - Grade 9 Math

Time limit: 2.0s **Memory limit:** 256M

Veshy is struggling in math class so he asks you for help (again). You are given two lines each defined by a pair of distinct points, (x_1, y_1) and (x_2, y_2), $x_1, y_1, x_2, y_2 \in \mathbb{Z}$. You are to find if the two lines are parallel, coincident, or intersecting.

Input Specification

The input will consist of two lines.
The first line of input will consist of four space-separated integers in the following order: x_1, y_1, x_2, y_2, the coordinates of the two points that define the first line.
The second line of input is the same format as the first line containing the coordinates of the points defining the second line.
In all cases, $-250 \leq x_1, y_1, x_2, y_2 \leq 250$.

Output Specification

If the lines are coincident, output `coincident`.
If the lines are parallel but not coincident, output `parallel`.
If the lines intersect, output the point of intersection (x, y) in the form `x y`.
Output your answer to 6 decimal places. Your answer will be considered correct if its absolute or relative error does not exceed 10^{-6}.

Sample Input 1

```
0 0 1 1
-1 -1 -2 -2
```

Sample Output 1

```
coincident
```

Sample Input 2

```
0 0 1 2
2 0 3 2
```

Sample Output 2

```
parallel
```

Sample Input 3

```
0 0 0 4
-2 6 2 6
```

Sample Output 3

```
0.000000 6.000000
```