Adding fingers   P55691_en

Consider a game for two players playing alternatively. Both players show a certain number of fingers in each hand. Let X be the player that moves next, and let Y be the other player. Let a and b be the number of fingers shown by X, and let c and d be the number of fingers shown by Y. In each turn, these are the allowed moves:

1. Add mod 5 as many fingers as X has in a non-empty hand (a hand showing at least one finger) to one of Y's non-empty hands. That is:

$$\begin{cases} (a,b)(c,d) \rightarrow (a,b)(c+a,d) & \text{if } a,c \neq 0 \\ (a,b)(c,d) \rightarrow (a,b)(c,d+a) & \text{if } a,d \neq 0 \\ (a,b)(c,d) \rightarrow (a,b)(c+b,d) & \text{if } b,c \neq 0 \\ (a,b)(c,d) \rightarrow (a,b)(c,d+b) & \text{if } b,d \neq 0 \end{cases}$$

2. "Move" the fingers in one of X's hands to the other hand, provided that none of them are empty. Again, the operations are made mod 5:

$$\begin{cases} (a,b)(c,d) \rightarrow (a+b,0)(c,d) & \text{if } a,b \neq 0 \\ (a,b)(c,d) \rightarrow (0,a+b)(c,d) & \text{if } a,b \neq 0 \end{cases}$$

3. "Redistribute" the fingers in X's hands, if one of them is empty:

$$\begin{cases} (a,0)(c,d) \rightarrow (x,y)(c,d) & \text{if } x+y = a \text{ and } 0 < x,y < a \\ (0,b)(c,d) \rightarrow (x,y)(c,d) & \text{if } x+y = b \text{ and } 0 < x,y < b \end{cases}$$

Both players play perfectly. The first player to get to $(0,0)$ loses the game. A game that never ends is considered to be a draw.

Input

Input consists of several cases, each one with a, b, c and d, all between 0 and 4. Assume $a+b > 0$ and $c+d > 0$.

Output

For every case, tell if X will win, if X will lose, or if the game is a draw.

Sample input 1

```
2 4 0 3
1 0 4 0
0 1 0 1
3 0 2 3
3 3 0 4
1 1 1 1
```

Sample output 1

```
WIN
WIN
LOSE
LOSE
DRAW
DRAW
```

Problem information

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