

MIDI Olympiad in Informatics 2007

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Input file	Output file	Time limit	Memory limit
scissors.in	scissors.out	2 seconds	16 MB

Scissors

Vilius and Adomas are playing a game. They both share a rectangular paper with dimension $M \times N$. The game proceeds as follows:

- Vilius cuts the rectangle apart into two smaller rectangles. Both rectangles produced have integer dimensions.
- Adomas cuts each rectangle into two, thus producing four rectangles.
- Vilius cuts again, producing eight rectangles.
- ...

Therefore, in one turn player cuts every rectangle (except 1×1) into two smaller rectangles. The player who cuts the last 1×2 rectangle into 1×1 is declared a winner. Adomas is very clever so he always makes best cuts. However, since good start is half success, you shall help Vilius make the first cut.

In the input file you are given one integer T ($1 \leq T \leq 1000$), the number of test cases. The following T lines contain 2 integers (M and N , $1 \leq M, N \leq 400$) each, representing separate test case.

You shall output T lines to the output file, each containing one of the possible output variants for given dimensions of a particular paper $M \times N$,

- Output letter H followed by integer K , if Vilius has to cut horizontally and divide initial rectangle into $M \times K$ and $M \times (N-K)$
- Output letter V followed by integer K , if Vilius has to cut vertically and divide rectangle into $K \times N$ and $(M-K) \times N$
- Output -1 in case Vilius doesn't have winning strategy.

Input	Output	Comment
4	-1	Can't cut 1×1
1 1	H 1	Winning condition – cut 1×2
1 2	-1	Adomas wins by cutting 1×2
1 3	-1	Adomas wins by cutting 1×2
1 4	H 1	One way is to cut horizontally making 1×1 and 1×3