

Grimms conjecture states that for each series of consecutive composite (not prime) numbers. There exists a unique prime for each one. Example:

Composite numbers between 23 and 29.

24 25 26 27 28

Your task is to find the **largest** possible values for each composite number that will still follow Grimms conjecture. Example:

24	25	26	27	28
<u>2</u>	<u>5</u>	2	<u>3</u>	2
3		<u>13</u>		<u>7</u>

Each composite number must have a single unique number.

Each unique prime should be the largest factor while still being unique.

Input

Input starts with an integer T, the number of puzzles to solve, where $1 \leq T \leq 100$. T lines follow, each one having 2 prime integers M and N. The beginning of the sequence (M) and the ending (N) these bounds are non-inclusive and $5 \leq M \leq N \leq 10^9$.

Output

Output a single number for each composite in the range, representing the largest unique prime of that number in the series.

Input:

1
23 29

Output:

2
5
13
3
7