

North America Qualifier

# Problem B

## Bikes and Barricades

Time limit: 1 second

Scott wants to ride his bike along a straight road. But the road has some barricades! Scott will ride his bike up to the first barricade and stop.

Model Scott's straight road as the positive  $Y$  axis, with Scott starting at the origin. The barricades are line segments, specified by their endpoints. Determine how far Scott can ride, or if his path is completely unobstructed.

### Input

The first line of input contains a single integer  $n$  ( $1 \leq n \leq 1,000$ ), which is the number of barricades.

Each of the next  $n$  lines contains four integers  $x_1, y_1, x_2$  and  $y_2$  ( $-100 \leq x_1, y_1, x_2, y_2 \leq 100$ ,  $x_1 \neq 0, x_2 \neq 0$ ), representing a barricade that runs from  $(x_1, y_1)$  to  $(x_2, y_2)$ . It is guaranteed that no barricade will run through the origin.

### Output

Output a single real number, which is how far Scott can ride before he hits the closest barricade, or  $-1.0$  if no barricades get in Scott's way. This output will be considered correct if it is within an absolute or relative error of  $10^{-2}$ .

Sample Input 1	Sample Output 1
<pre>2 -10 7 5 19 -1 -1 8 21</pre>	<pre>1.444444444444444446</pre>

Sample Input 2	Sample Output 2
<pre>2 4 -6 -12 -1 3 5 8 8</pre>	<pre>-1.0</pre>