

Problem K – Kilometric Intersection

On the Pan-American Highway, two maintenance crews work on different road segments. Each segment is a closed interval on a line (in kilometers). To coordinate resources, we only need the *length* of the overlap between both segments.

Given two closed intervals $[a, b]$ and $[c, d]$ (with $a \leq b$ and $c \leq d$), print the length of their intersection on the real line. If they do not overlap (or only touch at a single point), the length must be 0.

The length of a closed interval $[x, y]$ is defined as $y - x$.

Input

The first line contains an integer T ($1 \leq T \leq 10^5$), the number of test cases. Each of the next T lines contains four integers a, b, c, d ($-10^{18} \leq a \leq b \leq 10^{18}$, $-10^{18} \leq c \leq d \leq 10^{18}$).

Output

For each test case, print a single integer: the intersection length.

Sample input 1	Sample output 1
6	2
3 7 1 5	0
0 0 0 0	0
-5 -1 2 8	3
1 10 3 6	0
-1 4 4 10	5
-10 -2 -7 0	

Note

- If intervals only touch at an endpoint (e.g., $[0, 1]$ and $[1, 2]$), the intersection is $\{1\}$, whose length is 0.
- Use 64-bit integers to avoid overflow.