Bikes and Barricades

This one is simple math. We want to see if any of the barricades cross the positive Y-axis. That's just seeing if the Y-intercept is positive.

First of all, there's no way the barricade could get in Scott's way unless the x values are on opposite sides of the Y-axis. So, we can only consider cases where $x_1 \times x_2 < 0$.

Now then, the general equation of a line is

$$y = mx + b$$

Where m is the slope and b is the Y-intercept – but the Y-intercept is what we're after! So,

$$b = y - mx$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

(Note that since we're only dealing with cases where $x_1 \times x_2 < 0$, there's no danger of $x_2 - x_1 = 0$.

Then just plug in any point:

$$b = y_1 - mx_1$$

Look to see if b is positive and the smallest you've seen, and that's it.

Here's some Java code for you:

```
int n = sc.nextInt();
double closest = -1.0;
while( n-->0 )
{
  int x1 = sc.nextInt();
  int y1 = sc.nextInt();
  int x2 = sc.nextInt();
  int y2 = sc.nextInt();
  if( x1*x2<0 )
  {
    double m = (double)(y2-y1)/(double)(x2-x1);
    double b = y1 - m*x1;
    if( b>0.0 && (closest<0.0 || b<closest)) closest = b;
  }
}
ps.println( closest );
```