

## Exercise 1

### Orientation test in 2D

I use the procedure explained in class:

$$\text{OrientedArea}(T(P, Q, R)) = \frac{1}{2} \begin{vmatrix} q_1 - p_1 & r_1 - p_1 \\ q_2 - p_2 & r_2 - p_2 \end{vmatrix}$$

### Line segment intersection

I check for the following cases: Full intersection, both segments are overlapped and colinear, Both have one point in common and one of the points of one segment is on the other segment. Otherwise, there is no intersection detected.