LAB 2: Point-in-triangle test

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To solve the point-in-triangle test I will use the fact that the point is always on the same relative side of the triangle segments if it's inside it.

- If d1,d2,d3 are the sign determinants of the point ‘p’ with each respective segment, if they’re equal, ‘p’ appears inside the triangle. (It’s not possible that the 3 determinants have value 0, because the point cannot be over the 3 segments simultaneously, unless triangles defined by points on the same line exist; in that case, the program will output ‘p’ inside the triangle).

- If some determinant sign is 0 and the others equal, ‘p’ lies on one edge.

- In the case the point is on a corner, this means 2 determinants have value 0.

Code overview:

```
//determinant signs of the triangles segments
var d_s1 = Math.sign(det(triangle[0], triangle[1], p));
var d_s2 = Math.sign(det(triangle[1], triangle[2], p));
var d_s3 = Math.sign(det(triangle[2], triangle[0], p));

var insideTriangle = (d_s1 == d_s2 && d_s1 == d_s3);
var onEdge =      (d_s1 == 0 && d_s2 == d_s3) ||
                  (d_s2 == 0 && d_s1 == d_s3) ||
                  (d_s3 == 0 && d_s1 == d_s2);
var onCorner = Math.abs(d_s1) + Math.abs(d_s2) + Math.abs(d_s3) == 1;

//if !insideTriangle, !onEdge and !onCorner then ‘p’ is outside the
triangle...
```