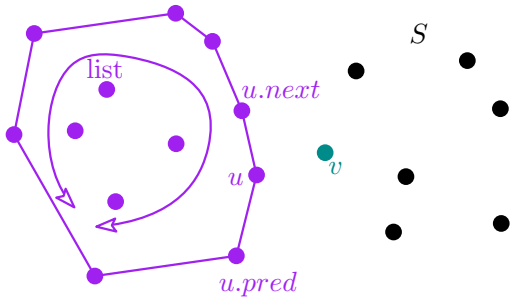
1 Convex hull: definitions, classical algorithms.

1.1 Convex hull by triangulation

Consider the following convex hull algorithm:

```
Input : S a point set.
sort S by x-coordinate;
create a circular list with the three leftmost points of S
    such that (u, u.next, u.next.next) is positively oriented and u rightmost;
S = S \ {u, u.next, u.next.next};
while S ≠ ∅ {
    v =leftmost point in S;
    S = S \ {v};
    w = copy(u);
    while (v, u, u.next) negative
        {u = u.next;}
    v.next = u; u.pred = v;
    while (v, w, w.pred) positive
        {w = w.pred;}
    v.pred = w; w.next = v;
    u = v;
}
```



1.1.1 Run the algorithm

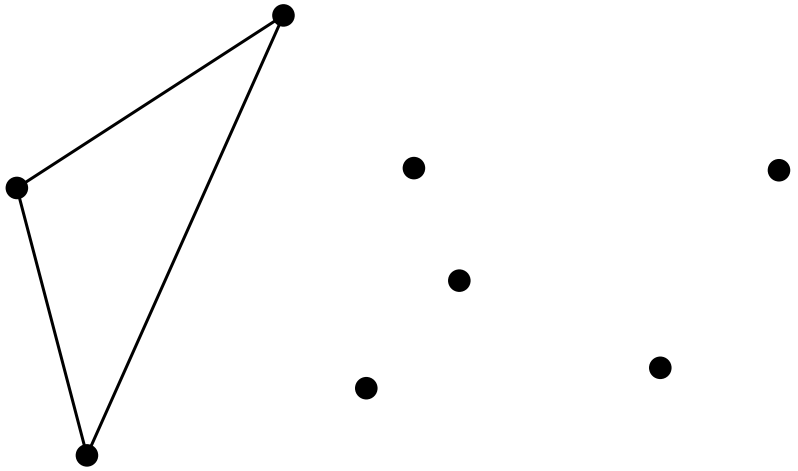
Run (by hand) the algorithm on the example provided on the attached example and draw on the example the line segment uv in green each time the code pass through the line of the code marked with a green dot, draw uv in blue for the code line with a blue dot, and draw wv in red for the code line with a red dot,

1.1.2 Complexity

What is the complexity of this algorithm on a set of n points (hint: use Euler relation).

Convex hull by triangulation

Run on the point set:



Complexity: