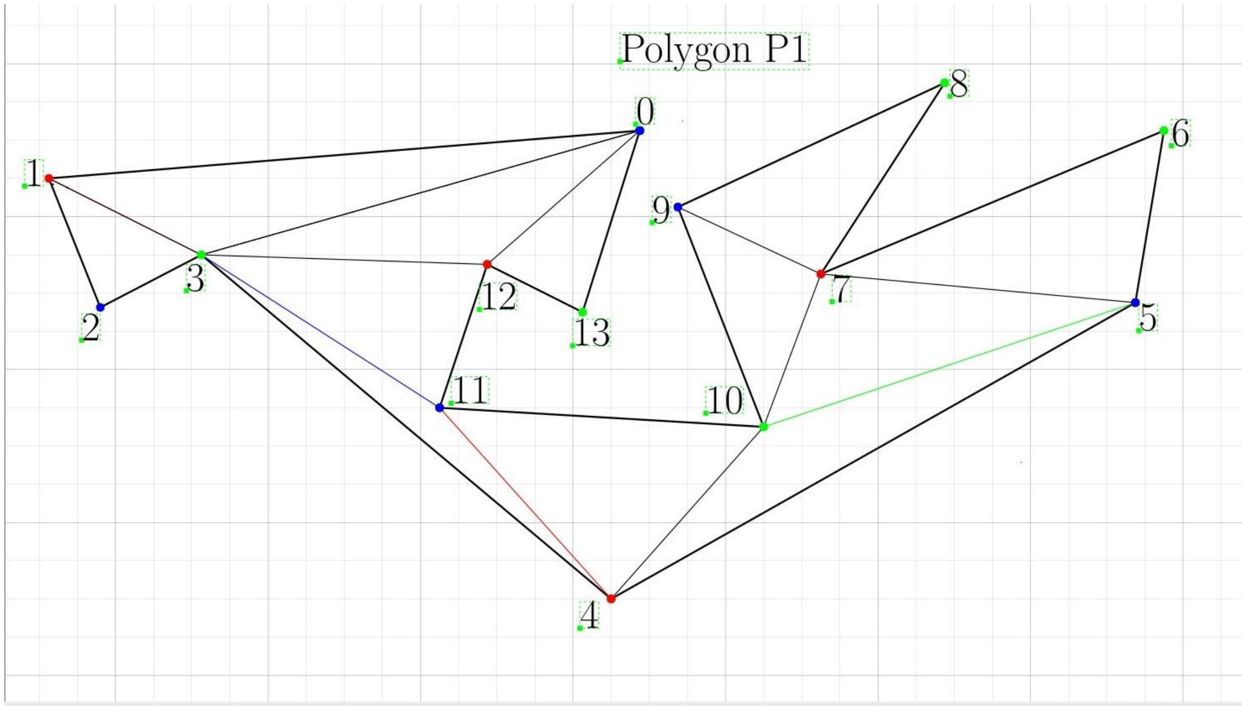
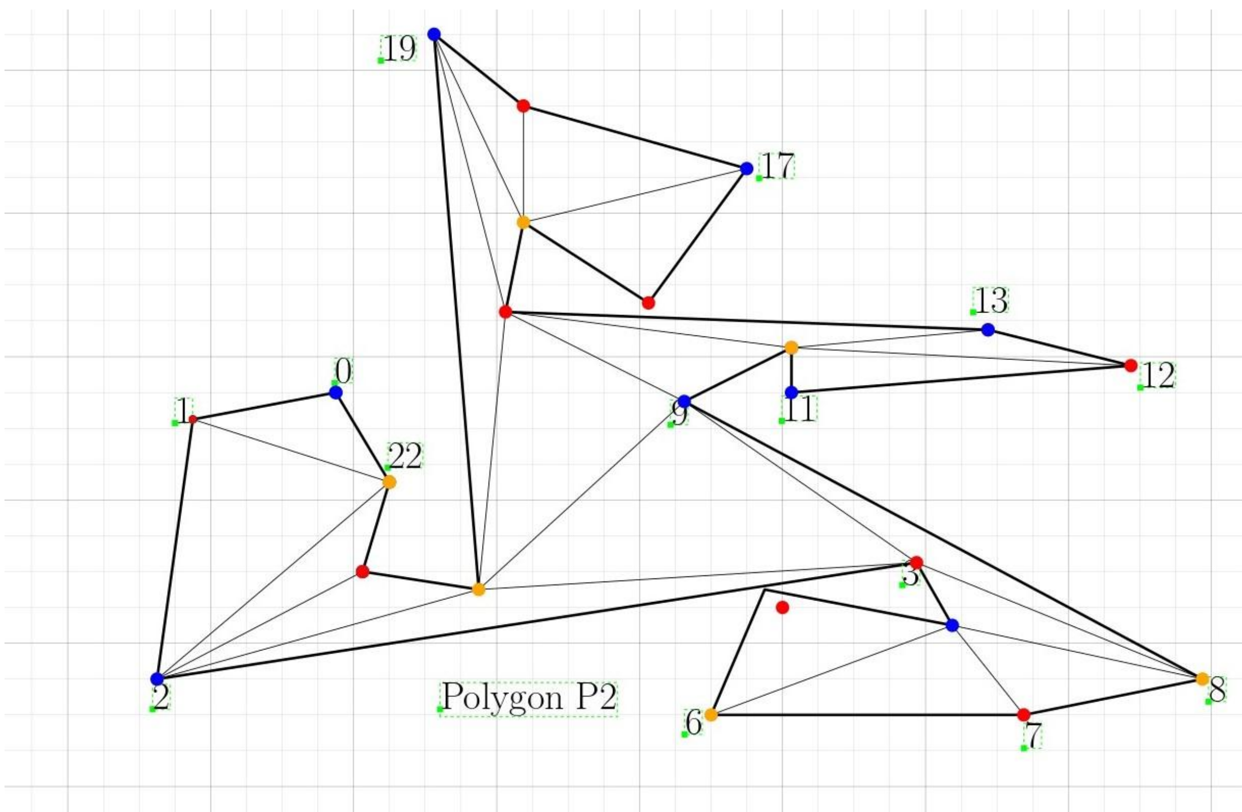
2(a)



Polygon P1
0
1
2
3
4
5
6
7
8
9
10
11
12
13

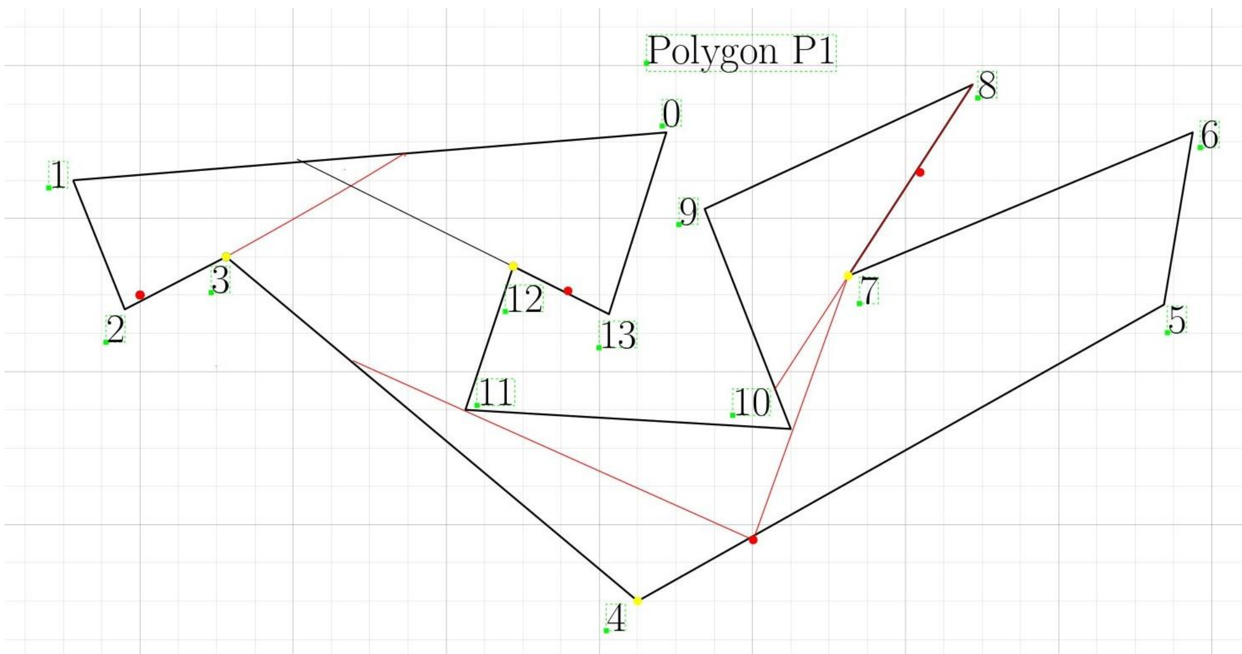


Polygon P2
19
17
13
12
0
1
22
9
11
3
2
6
7
8

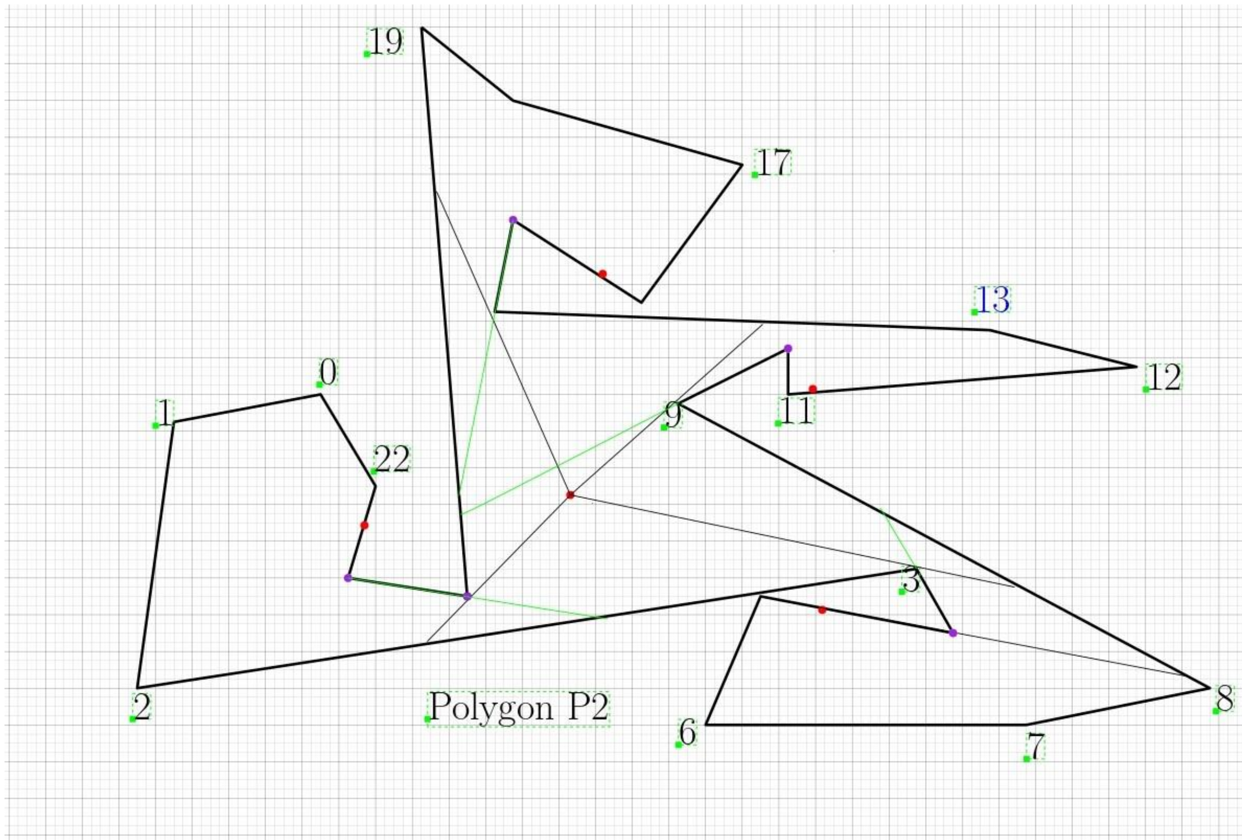
(b)
Polygon1:
There is a triangulation of the polygon with 3 colors in vertices.
Red - 4, green -5, blue -5
Therefore, based on the fisk's proof, we should use the 4 guards in red vertices.

Polygon2:
There is a triangulation of the polygon with 3 colors in vertices.
Red - 9, blue -8, orange -6
Therefore, based on the fisk's proof, we should use the 6 guards in orange vertices.

(c)

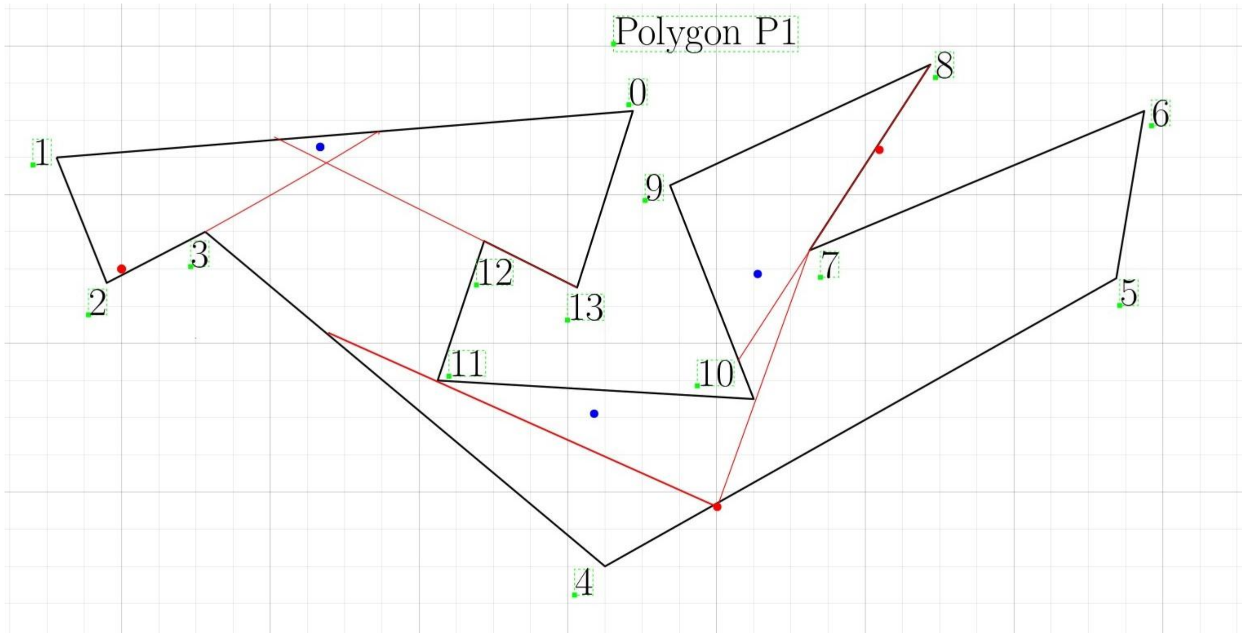


Polygon1:
First we can find a set of 4 red witness points that are respect to vertex guards, so w_v(P1) >= 4. Then we can find 4 yellow vertex guards that can see all the polygon. Thus, 4 ≤ w_v(P1) ≤ g_v(P1) ≤ 4, so w_v(P1) = g_v(P1) = 4.



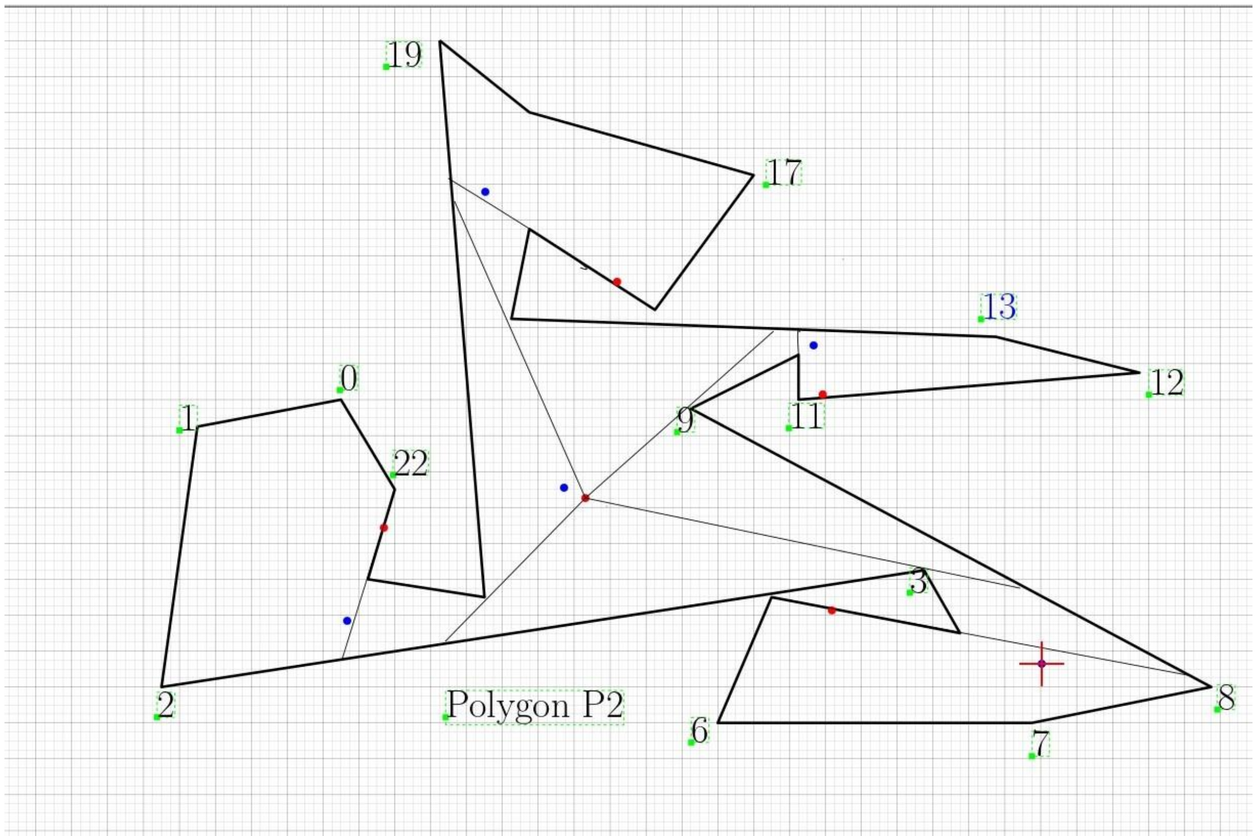
Polygon2:
First we can find a set of 5 red witness points that are respect to vertex guards, so w_v(P1) >= 5. Then we can find 5 purple vertex guards that can see all the polygon. Thus, 5 ≤ w_v(P2) ≤ g_v(P2) ≤ 5, so w_v(P2) = g_v(P2) = 5.

(d)



Polygon1:

First we can find a set of 3 red witness points that are respect to guard points, the visibility polygons of the 3 points are pairwise disjoint, so w(P1) >= 3. Then we can find 3 blue guard points that can see all the polygons. Thus, $3 \leq w(P1) \leq g(P1) \leq 3$, so, $w(P1) = g(P1) = 3$.



Polygon2:
First we can find a set of 5 red witness points that are respect to guard points, the visibility polygons of the 5 points are pairwise disjoint, so w(P2) >= 5. Then we can find 5 blue guard points that can see all the polygons. Thus, 5 ≤ w(P2) ≤ g(P2) ≤ 5, so, w(P2) = g(P2) = 5.