

# MAC0331 - Lista 1

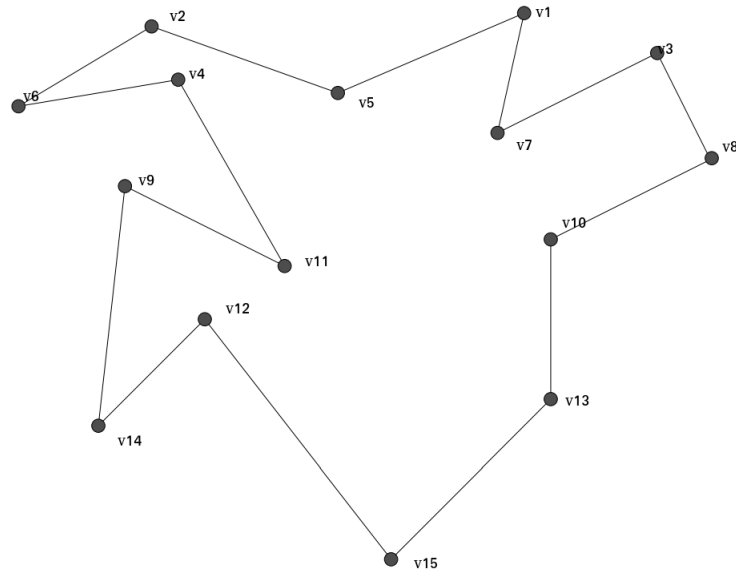
Matheus T. de Laurentys, 9793714

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**Q 8:**

If using the definition of direction typical of the English language, the answer is no. The reason is that if a polygon is  $\alpha$ -monotone, then it is also  $(-\alpha)$ -monotone. If using the definition typical of the Portuguese, in which  $\overrightarrow{NS}$  might mean  $\overrightarrow{NS}$  or  $\overleftarrow{NS}$  language, the answer is yes.

**Q 10:**



In the trace test, T is the sweep line and (c,v,d) is the set of the vertex analyzed and its left (c) and right (d) edges - those are not always named. D is the set of diagonals.

Vertex	Case	Actions	D
$v_1$	2	T += (c,v,d)	
$v_2$	2	T += (c,v,d)	
$v_3$	2	T += (c,v,d)	
$v_4$	2	Replace trapeze with two new	$(v_2, v_4)$
$v_5$	3	Replace two trapeze with one new	$(v_2, v_4)$
$v_6$	3	Remove trapeze	$(v_2, v_4)$
$v_7$	3	Replace trapeze with two new	$(v_2, v_4), (v_5, v_7)$
$v_8$	1	Exchange trapeze	$(v_2, v_4), (v_5, v_7), (v_7, v_8)$
$v_9$	2	T += (c,v,d)	$(v_2, v_4), (v_5, v_7), (v_7, v_8)$
$v_{10}$	1	Exchange trapeze	$(v_2, v_4), (v_5, v_7), (v_7, v_8)$
$v_{11}$	3	Replace two trapeze with one new	$(v_2, v_4), (v_5, v_7), (v_7, v_8), (v_5, v_{11})$
$v_{12}$	2	Replace trapeze with two new	$(v_2, v_4), (v_5, v_7), (v_7, v_8), (v_5, v_{11}), (v_{11}, v_{12})$
$v_{13}$	1	Exchange trapeze	$(v_2, v_4), (v_5, v_7), (v_7, v_8), (v_5, v_{11}), (v_{11}, v_{12})$
$v_{14}$	3	Remove trapeze	$(v_2, v_4), (v_5, v_7), (v_7, v_8), (v_5, v_{11}), (v_{11}, v_{12})$
$v_{15}$	3	Remove trapeze	$(v_2, v_4), (v_5, v_7), (v_7, v_8), (v_5, v_{11}), (v_{11}, v_{12})$

### Q15:

a.

```

1  print_face_vertices (face f):
2      start = f.edge
3      n = start.next
4      print(start.v0)
5      while (n != start):
6          print(next.v0)
7          n = n.next

1  print_adjacent_vertices(edge start): # start is (u,v) -- v is the target vertex
2      e = start
3      while (true):
4          print(e.v0)
5          e = e.next.twin
6          if (e == start):
7              break

```