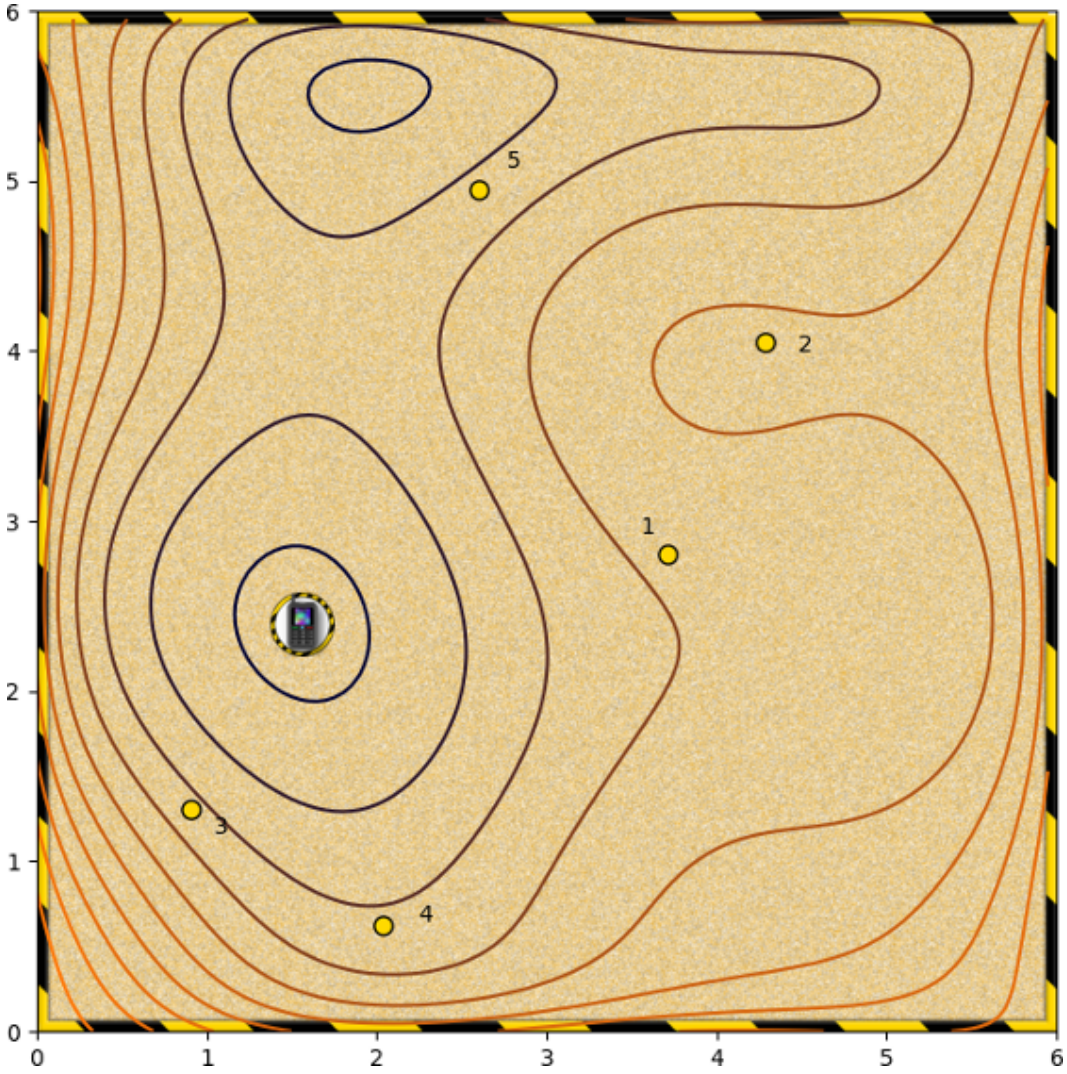
1. Given the following contour plot,

1 / 1 punto



Which starting points (from 1 to 5) are likely to converge to the global minimum (shown by the mobile phone) when using a steepest descent algorithm?

- [x] Starting point 1

Correcto
In this case, the algorithm descends smoothly down the slope.

- [ ] Starting point 2
- [x] Starting point 3

Correcto

In this case, the algorithm descends smoothly down the slope.

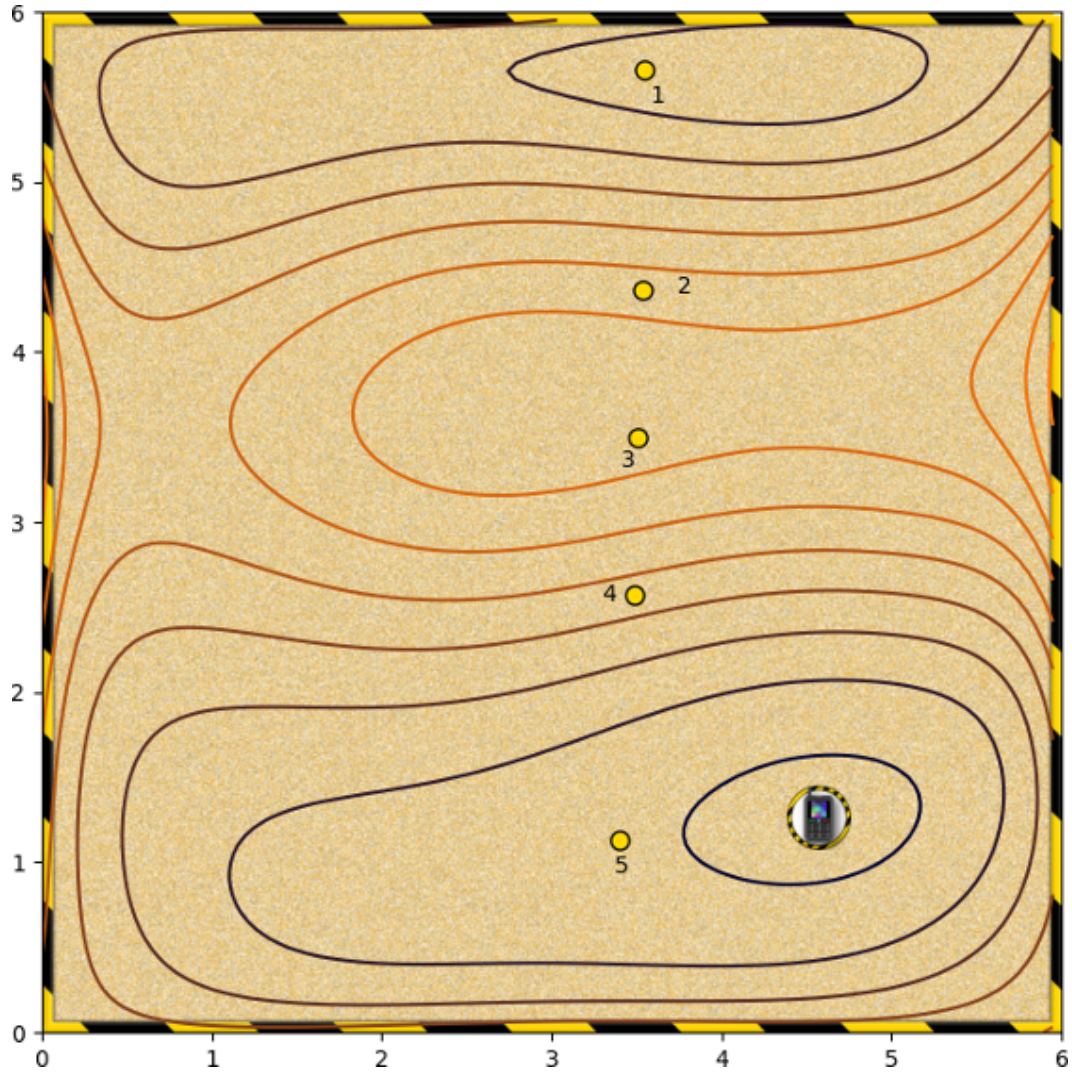
- [x] Starting point 4

Correcto
In this case, the algorithm descends smoothly down the slope.

- [ ] Starting point 5

- [ ] None of the above

2. Again, which starting points converge to the global minimum? **1 / 1 punto**



- [ ] Starting point 1
- [ ] Starting point 2
- [x] Starting point 3

Correcto
This should converge to the global minimum.

- [x] Starting point 4

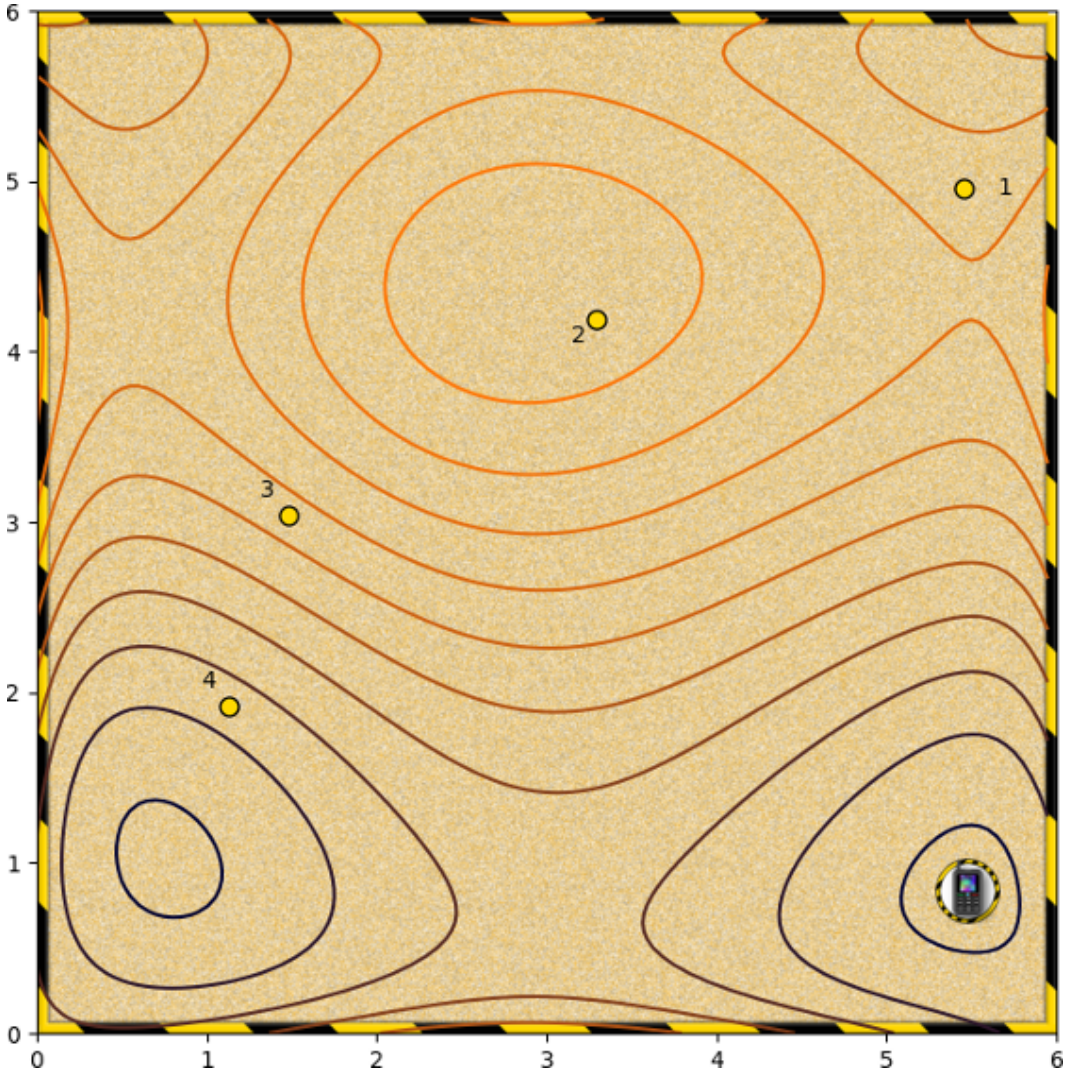
Correcto
This should converge to the global minimum.

- [x] Starting point 5

Correcto
This should converge to the global minimum.

- [ ] None of the above

3. Which starting points converge to the global minimum? **1 / 1 punto**

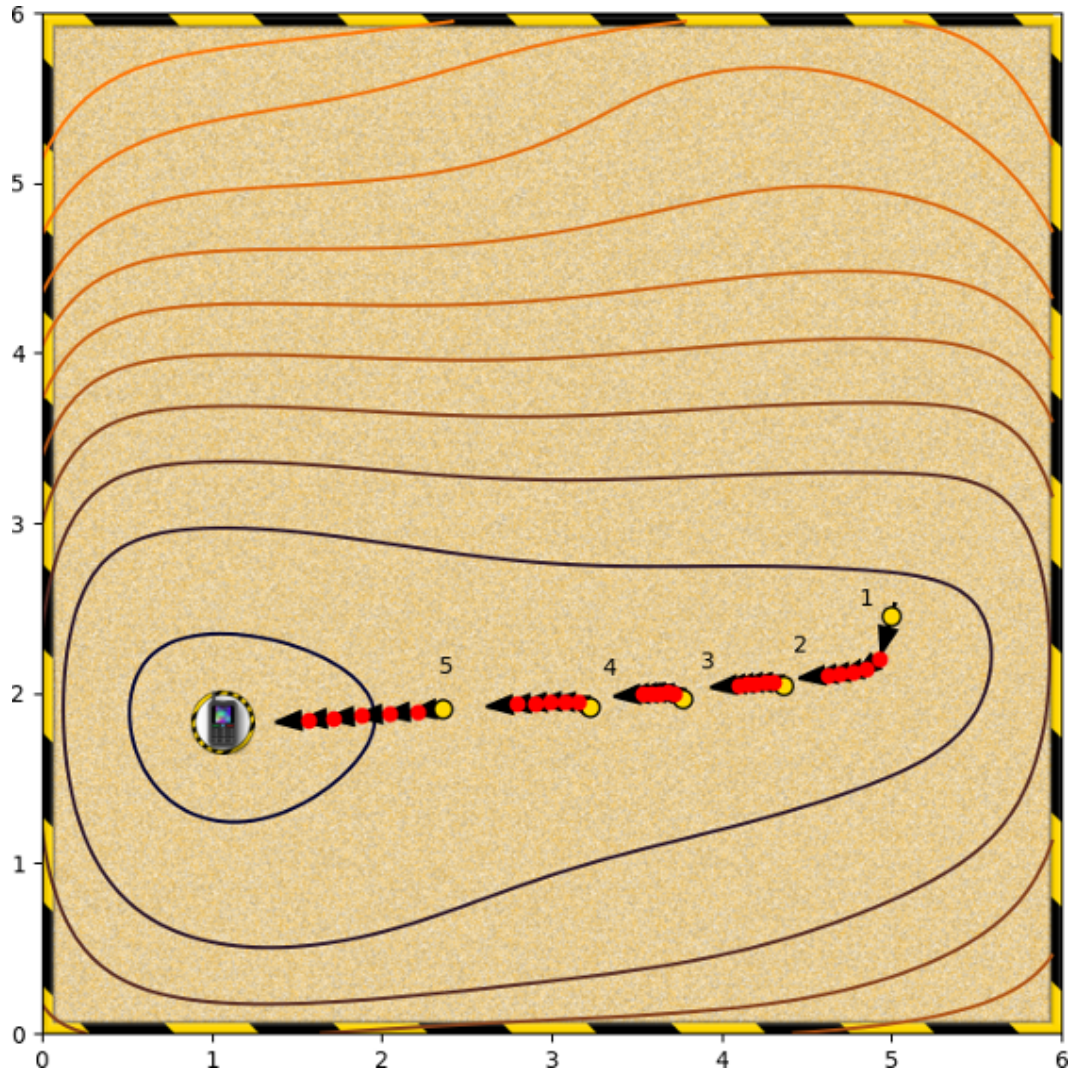


- [ ] Starting point 1
- [x] Starting point 2

Correcto
From here, the algorithm will descend the hill to the global minimum.

- [ ] Starting point 3
- [ ] Starting point 4
- [ ] None of the above

4. What's happening in this gradient descent? **1 / 1 punto**

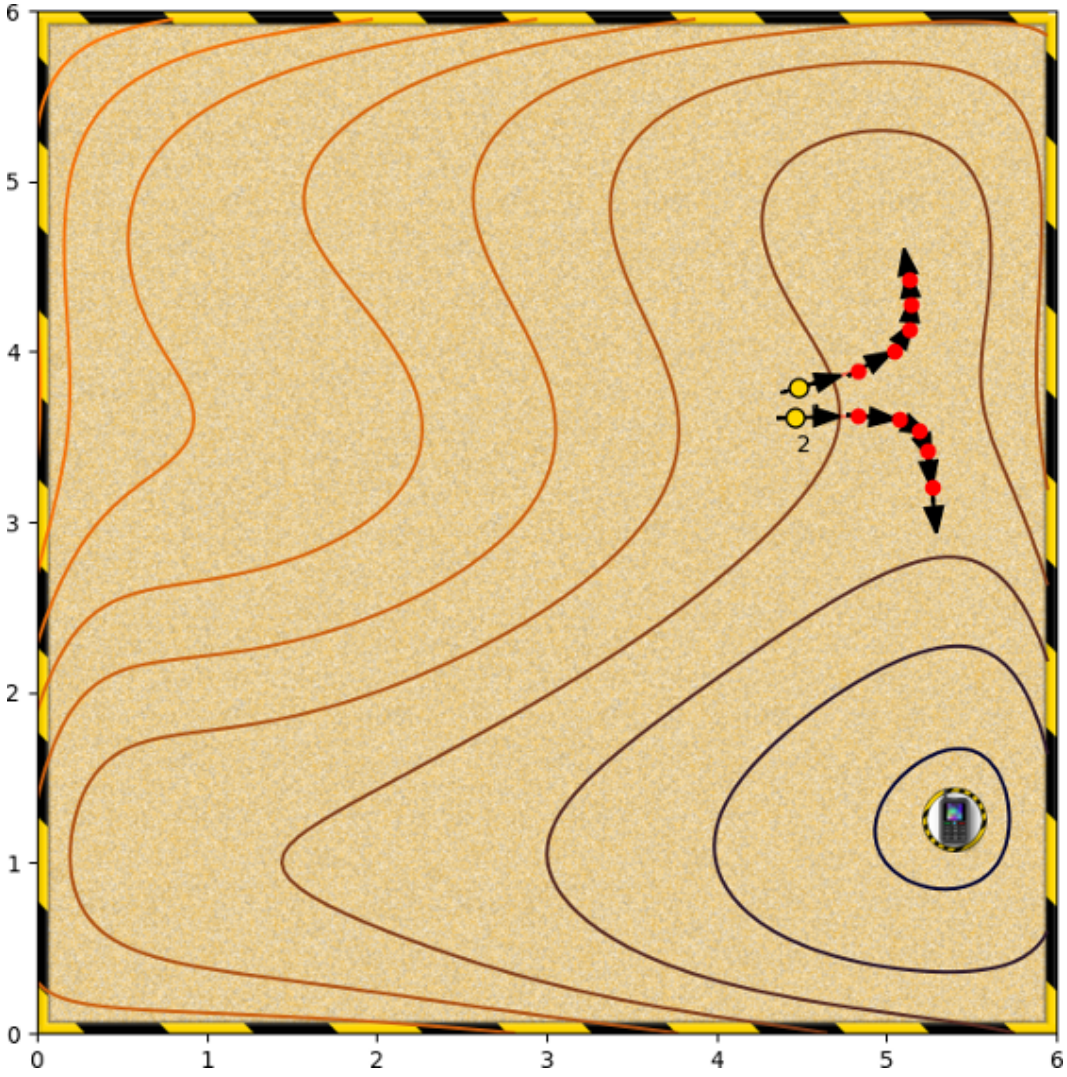


- ( ) The algorithm is getting stuck near saddle points.
- (•) The global minimum is in a wide and flat basin, so convergence is slow.

- ◯ None of the other options.
- ◯ The algorithm is getting stuck near local minima.

Correcto
This could be improved by increasing the aggression.

5. What is happening here? **1 / 1 punto**

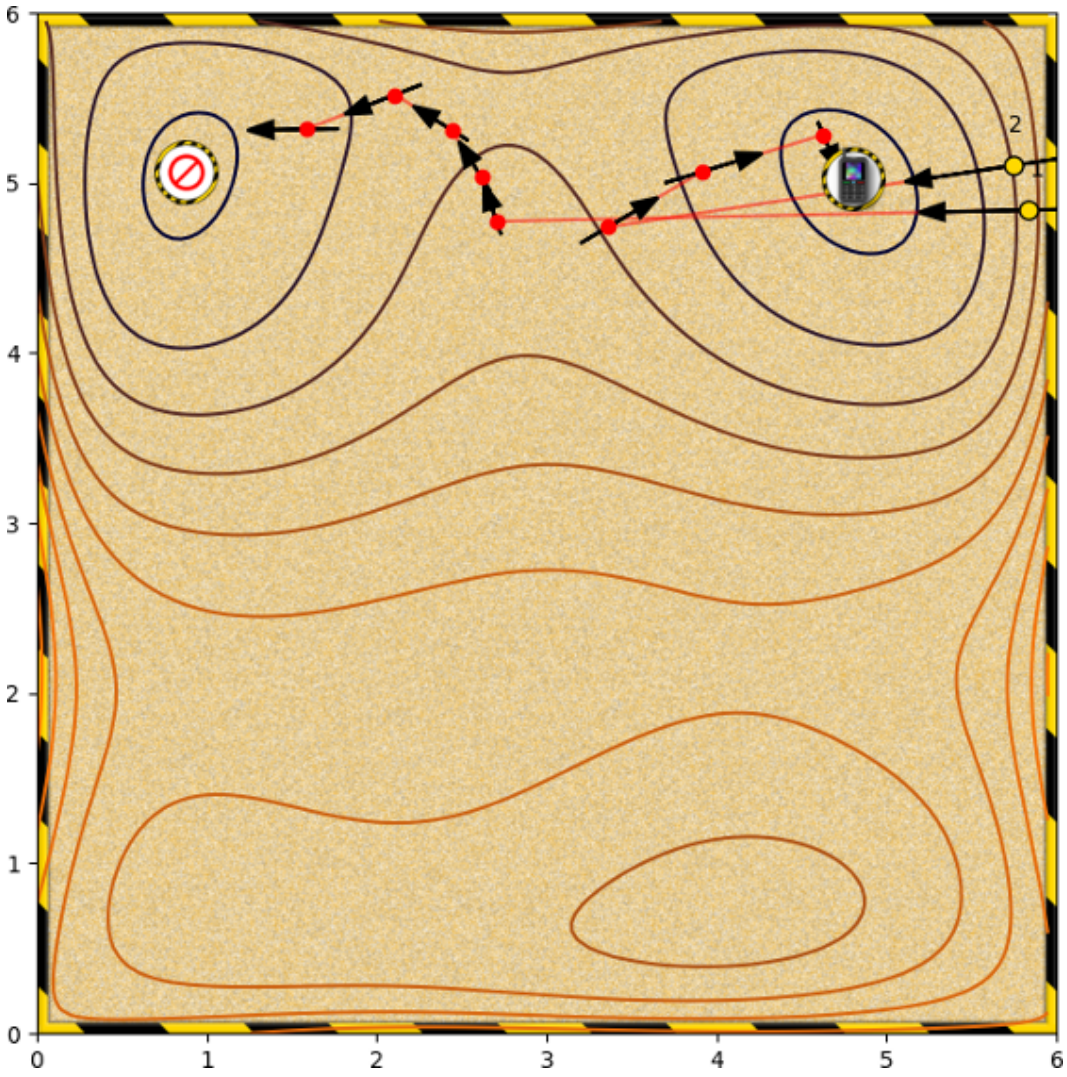


- ◯ The algorithm is passing either side of a local minimum.
- ◯ None of the other options.

- (●) The algorithm is passing either side of a saddle point.
- ( ) The algorithm is passing either side of a local maximum.
- ( ) There is noise in the system.

✓ **Correcto**

6. What is happening here? **1 / 1 punto**



- (●) The Jacobian at the starting point is very large.
- ( ) None of the other options.

- ◯ There is noise in the system
- ◯ The marked points are saddle points.

Correcto
This is causing the algorithm to overshoot. In one case into a different basin.