

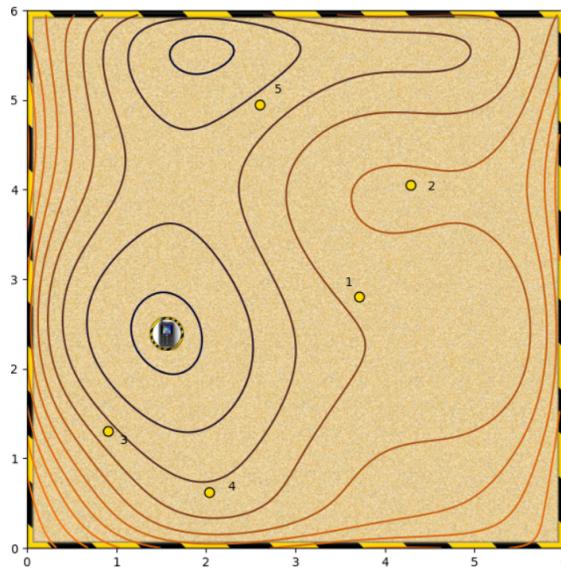
Your grade: 100%

Your latest: 100% • Your highest: 100% • To pass you need at least 80%. We keep your highest score.

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1. Given the following contour plot,

1 / 1 point



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?

 Starting point 1 **Correct**

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

 Starting point 2 Starting point 3 **Correct**

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

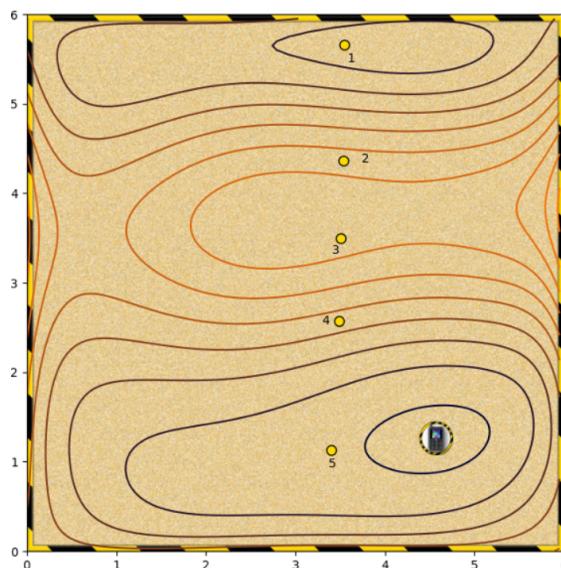
 Starting point 4 **Correct**

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 point



Starting point 1

Starting point 2

Starting point 3

Correct

This should converge to the global minimum.

Starting point 4

Correct

This should converge to the global minimum.

Starting point 5

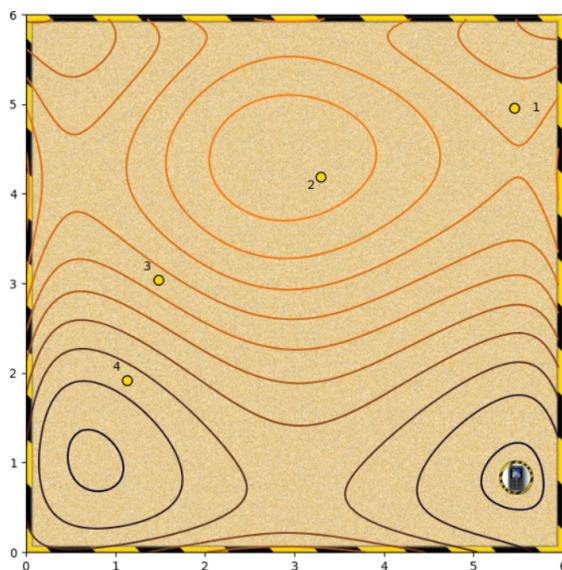
Correct

This should converge to the global minimum.

None of the above

3. Which starting points converge to the global minimum?

1 / 1 point



Starting point 1

Starting point 2

Correct

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

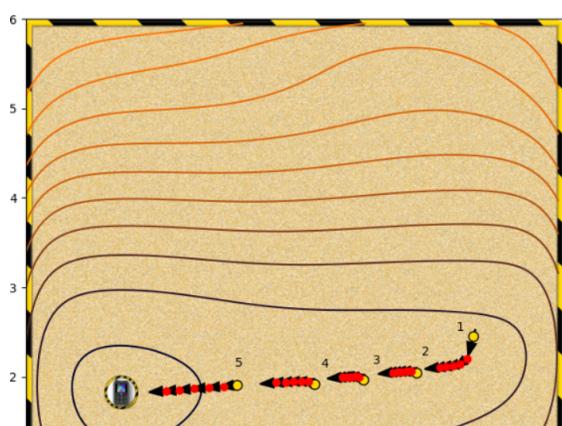
Starting point 3

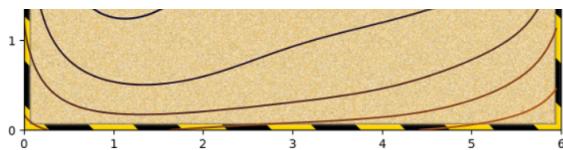
Starting point 4

None of the above

4. What's happening in this gradient descent?

1 / 1 point





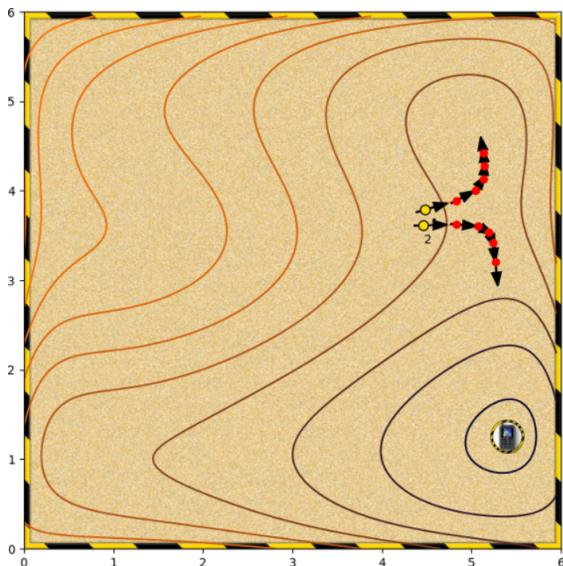
- The global minimum is in a wide and flat basin, so convergence is slow.
- The algorithm is getting stuck near saddle points.
- The algorithm is getting stuck near local minima.
- None of the other options.

Correct

This could be improved by increasing the aggression.

5. What is happening here?

1 / 1 point

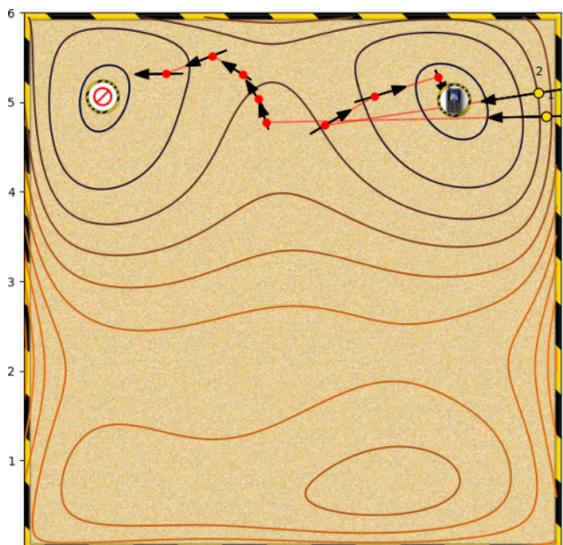


- None of the other options.
- The algorithm is passing either side of a local minimum.
- There is noise in the system.
- The algorithm is passing either side of a saddle point.
- The algorithm is passing either side of a local maximum.

Correct

6. What is happening here?

1 / 1 point





- None of the other options.
- The Jacobian at the starting point is very large.
- The marked points are saddle points.
- There is noise in the system

 **Correct**

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