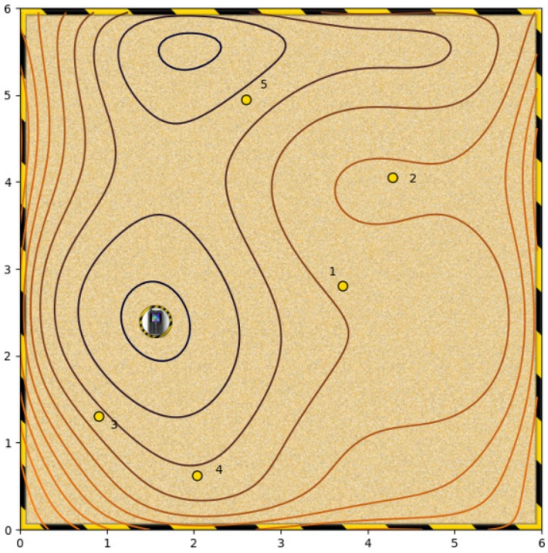
Congratulations! You passed! Next Item

1 / 1 point

1. Given the following contour plot,



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

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

- [ ] Starting point 2

Un-selected is correct

- [x] Starting point 3

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

- [x] Starting point 4

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

- [ ] Starting point 5

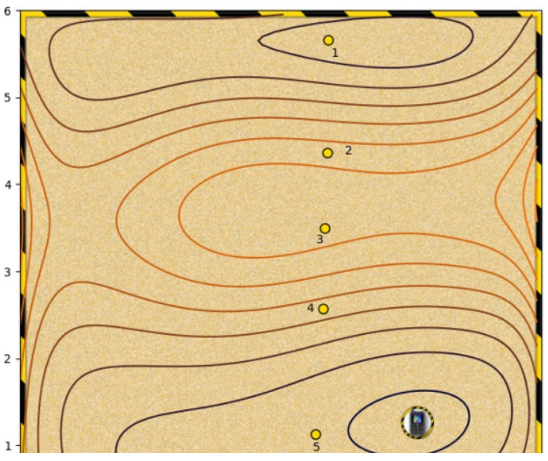
Un-selected is correct

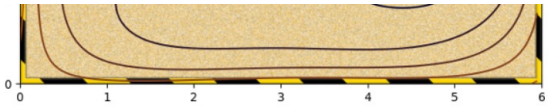
- [ ] None of the above

Un-selected is correct

1 / 1 point

2. Again, which starting points converge to the global minimum?





- [ ] Starting point 1

Un-selected is correct

- [ ] Starting point 2

Un-selected is correct

- [x] Starting point 3

Correct
This should converge to the global minimum.

- [x] Starting point 4

Correct
This should converge to the global minimum.

- [x] Starting point 5

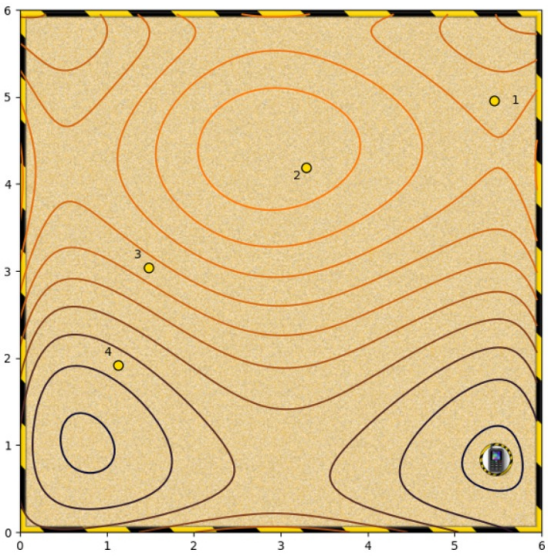
Correct
This should converge to the global minimum.

- [ ] None of the above

Un-selected is correct

✔ 1 / 1 point

3. Which starting points converge to the global minimum?



- [ ] Starting point 1

Un-selected is correct

- [x] Starting point 2

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

- [ ] Starting point 3

Un-selected is correct

- [ ] Starting point 4

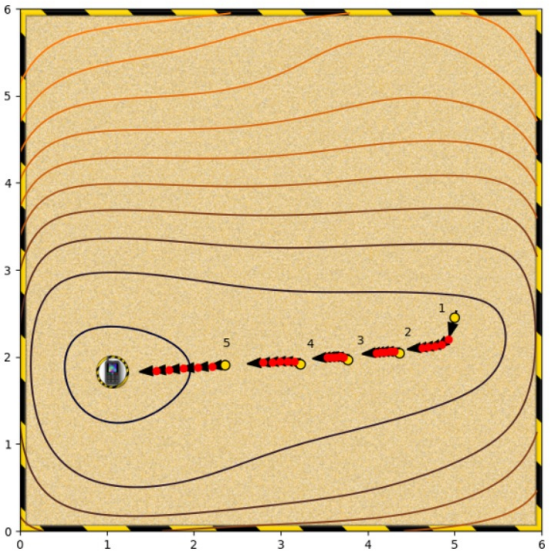
Un-selected is correct

- [ ] None of the above

Un-selected is correct

4. What's happening in this gradient descent?

1 / 1 point



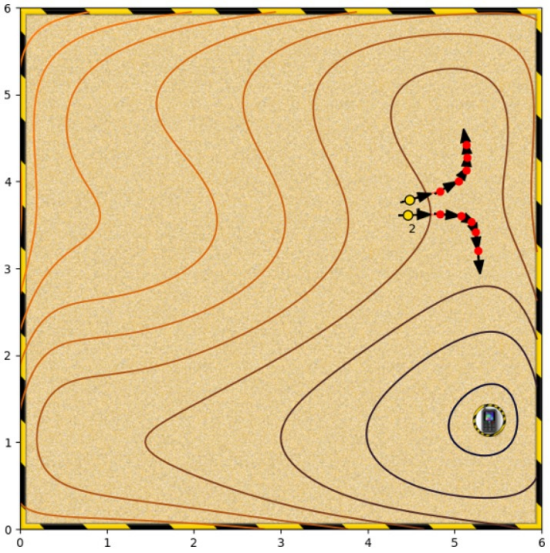
- The algorithm is getting stuck near local minima.
- The global minimum is in a wide and flat basin, so convergence is slow.

Correct
This could be improved by increasing the aggression.

- None of the other options.
- The algorithm is getting stuck near saddle points.

5. What is happening here?

1 / 1 point



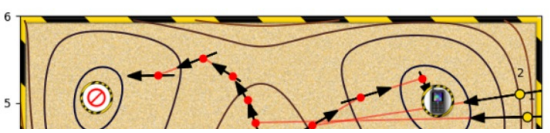
- The algorithm is passing either side of a saddle point.

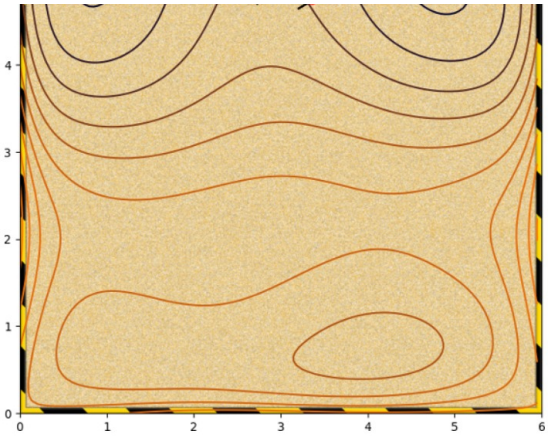
Correct

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

6. What is happening here?

1 / 1 point





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

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

- The marked points are saddle points.