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9. Hikers in a canyon continued

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Lecture due Aug 4, 2021 20:30 IST Completed

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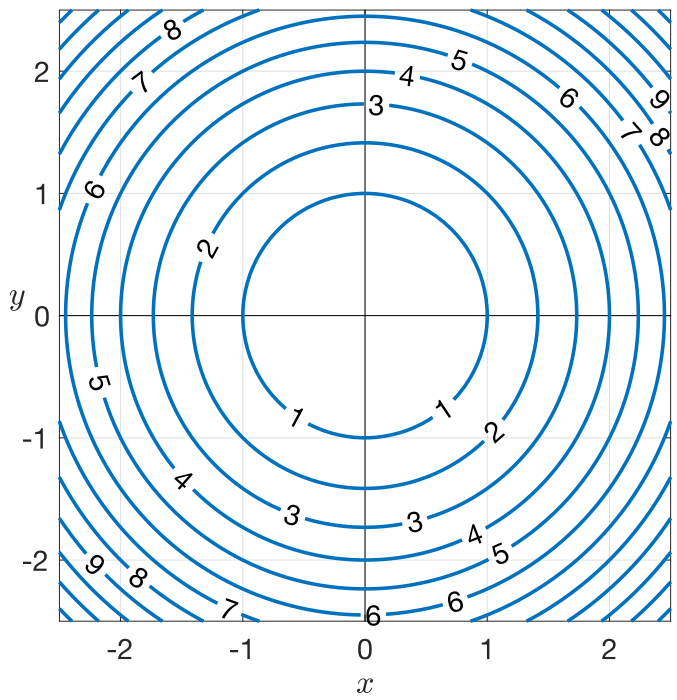
Hikers in a canyon continued

To explain the previous question, let's consider the level curves of $f(x,y) = x^2 + y^2$ shown below.

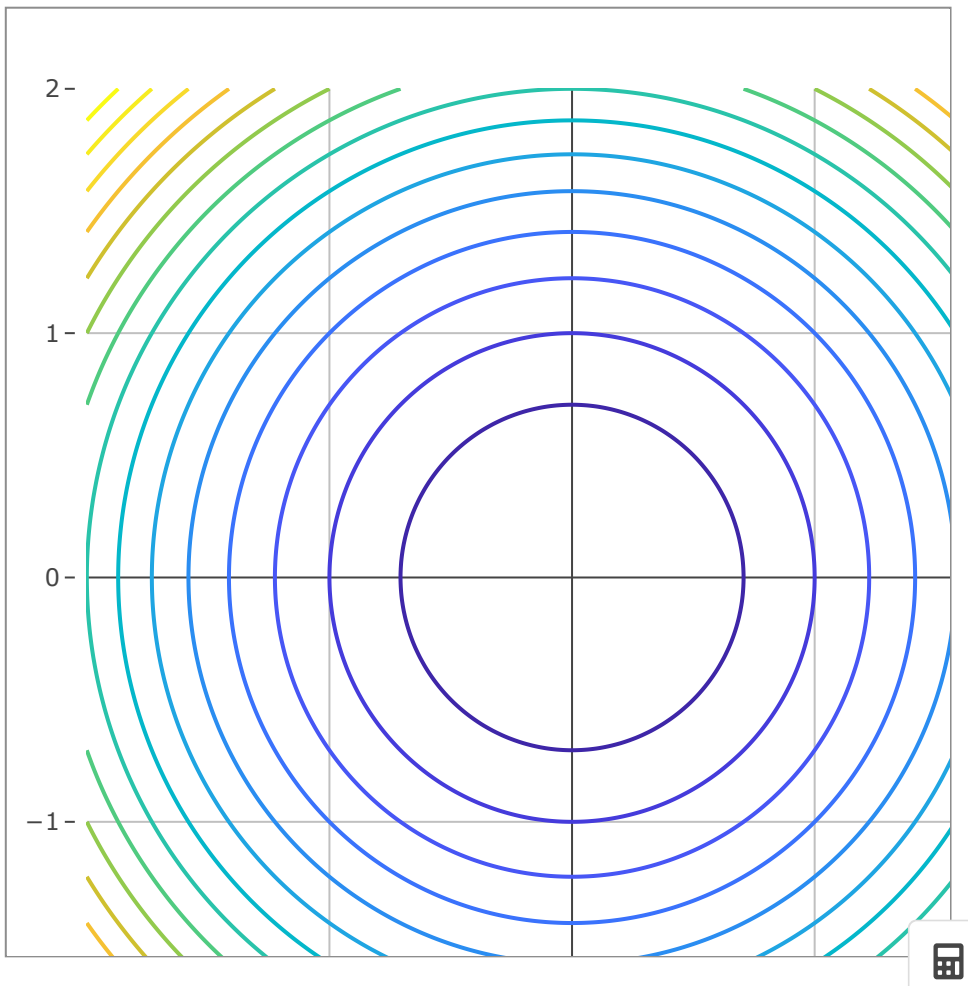


By starting at $(-1, 1)$ and moving in the positive x-direction, we can see that Hiker 1 is moving from near the level curve $x^2 + y^2 = 2$ towards the level curve $x^2 + y^2 = 1$. This indicates that the hiker is moving towards a lower elevation, and therefore, the hiker is moving downhill.

You can check the elevation on the level curves below. Use the cursor to hover over a point on the plot of level curves. You will see the read out of the x position, y position, and z value below the plot.

▸ **Level Curves**

Equation 1 $z = f(x,y) = x^2 + y^2$



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Hiker 2

1/1 point (graded)
Recall that Hiker 1 started at $(-1, 1)$ and moved downhill when going in the positive x-direction. Now let's consider Hiker 2. This hiker starts at the point $(-2, 0)$ and moves in the positive x-direction. In this case, Hiker 2 is also moving downhill. Between Hiker 1 and Hiker 2, which hiker is going downhill more steeply? (This question is graded.)

- Hiker 1
- Hiker 2
- The steepness is the same for both.

✔

Solution:

Hiker 2 is moving downhill more steeply. If we consider the level curves, we can see that Hiker 2 has to move a shorter distance than Hiker 1 to go from one level curve to the next.

Submit You have used 2 of 2 attempts

Answers are displayed within the problem

9. Hikers in a canyon continued

Topic: Unit 1: Functions of two variables / 9. Hikers in a canyon continued

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? Slope in a paraboloid?
Hello. I'm having so much fun learning these concepts. I would just like know if this question could be solve t

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☑	mathlet not loading... mathlet above and also previous ones are not loading. anyone an help?	2
💬	The plot of the level curves helps you can see how z values change from hiker 2's position compared to hiker 1	1
💬	Sliding down a parabola	1
💬	steepest descent Hello everyone. The problem of the steepest descent will be clear when gradient and directional derivative will be introduced. Anyw...	4

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