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3. Constrained optimization

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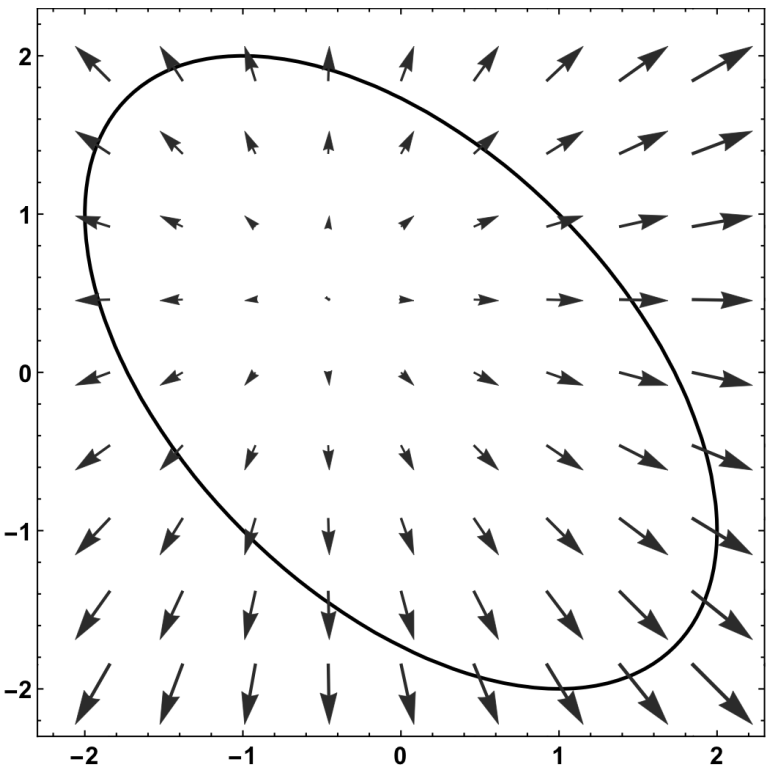
Recitation due Sep 13, 2021 20:30 IST Completed

Explore

The gradient of a function inside a region

1.0/1 point (graded)

The following picture shows the gradient of a function f.



Let R be the region inside of the curve.

Find the point inside R where f is minimal.

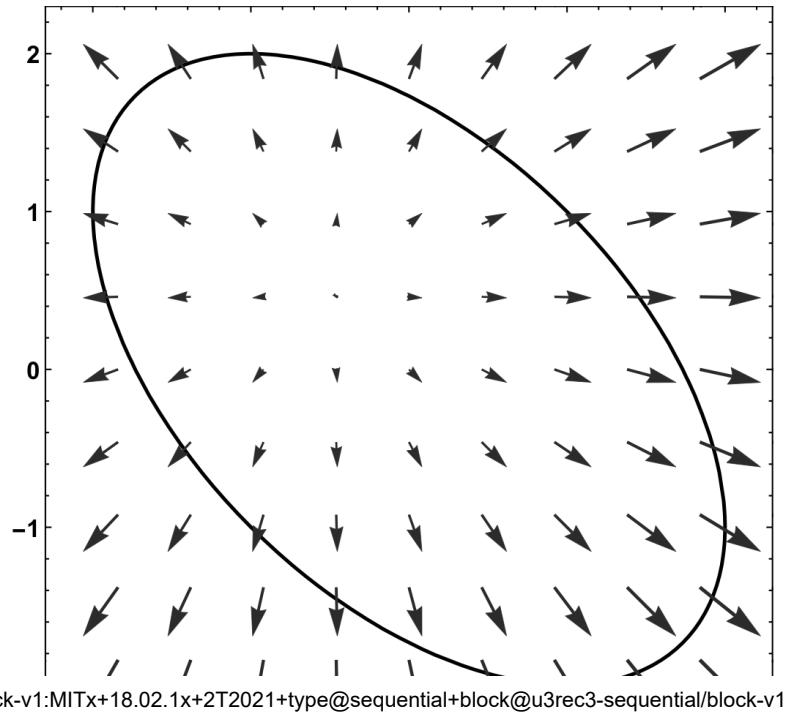
(Enter a point as an ordered pair inside of round parentheses. For example type `(0,0)` to denote the point at the origin $(0,0)$.)

(-1/2,1/2) ✔

Submit You have used 2 of 5 attempts

The behavior of the function on the boundary

1/1 point (graded)



Calculator Hide Notes

There is a point on the boundary of R with coordinates roughly $(1.5, .5)$. If you start at this point and travel along the boundary counter-clockwise, does the function f increase or decrease?

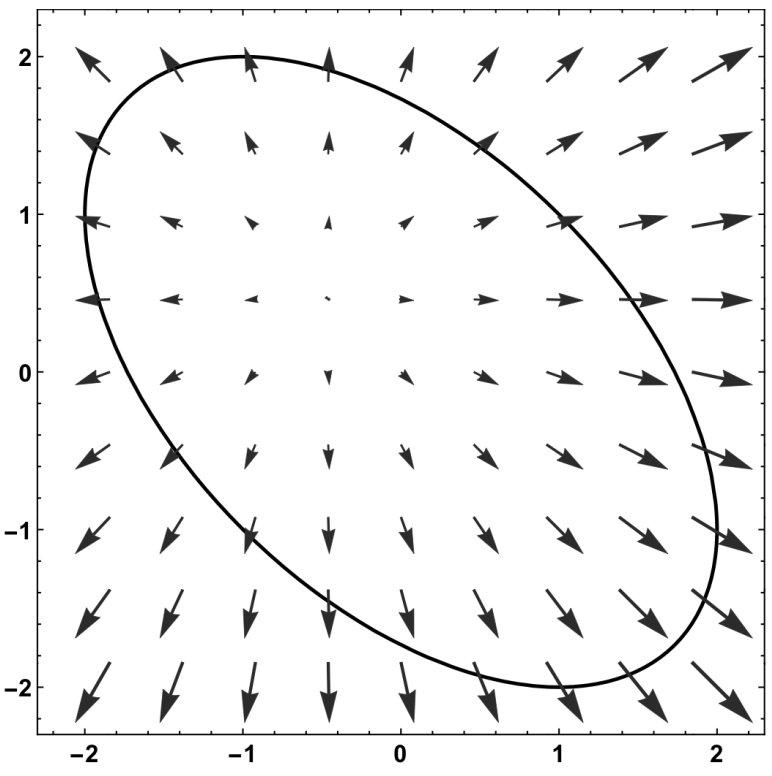
- ○ f increases
- ◉ f decreases
- ○ f neither increases nor decreases

✔

Submit You have used 1 of 2 attempts

The gradient of a function inside a region

1.0/1 point (graded)



Find the point inside or along R where f is maximal.

(1.8,-1.8) ✔

Submit You have used 1 of 5 attempts

3. Constrained optimization

Topic: Unit 3: Optimization / 3. Constrained optimization

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? The behavior of the function on the boundary 2

Hello, What is the reasoning behind the answer for the second question?

Direction of axes

Calculator Hide Notes

Hi, I thought I nailed the interpretation of the x-y axes, but I am now confused. Could anyone please clarify which is the x-axis and w... 4

last question
sorry, to me it looks like the gradient is not exactly radial (equal "jumps" occur along sides of a square, not a circle); therefore, it look... 7

Good (& possibly above-board) resource for thinking about last question
I found the last question as a good lead-in to start thinking about Lagrange multipliers-- I was mainly able to draw a connection to L... 1

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Next Up: Lecture 11: Lagrange Multipliers
47 min + 10 activities

Calculator Hide Notes