Lecture 11: Worksheet

Critical points and extrema

In this worksheet we want to find out Which rectangle of fixed area $xy = 1$ has minimal circumference $2x + 2y$.

To solve this problem we have to extremize the function

$$f(x) = 2x + \frac{2}{x}.$$

1. Differentiate the function $f$. For which $x$ is it continuous?

2. Find the critical points of $f$, the places where $f'(x) = 0$.

3. Sketch the graph of $f$ on the interval $(0, 4]$. 