

Introduction to Optimization

Relative Extrema

- 1) Find the extreme values for $f(x) = 1x/2 + 2$ over the interval $[0,100]$ and determine where they occur.
- 2) Find the extreme values for $f(x) = 2x^3 - 3x^2 - 12x + 8$ over the interval $[-2, 2]$ and determine where they occur.
- 3) Find the extreme values for $f(x) = x - \sin x$ over the interval $[-\pi/2, \pi/2]$ and determine where they occur.
- 4) Find the extreme values for $f(x) = x^{4/3} - 3x^{1/3}$ over the interval $[-1, 8]$ and determine where they occur.
- 5) Find the extreme values over the interval $(-\infty, \infty)$ for
$$f(x) = \begin{cases} x^2, & x < 0 \\ x^3, & x \geq 0 \end{cases}$$
- 6) Find the extreme values for $f(x) = |3 - 2x|$ over the interval $[-2, 2]$ and determine where they occur.