

Math 1311
Calculus I
Local Extrema

In Exercises 1 through 3, sketch the graph of a function f that is continuous on $(0, \infty)$ and has the given properties.

Exercise 1. Absolute maximum at 3, no absolute minimum.

Exercise 2. Absolute minimum at 1, local maximum at 7, no absolute maximum.

Exercise 3. f is always positive, has an absolute maximum at 3, but has no absolute minimum.

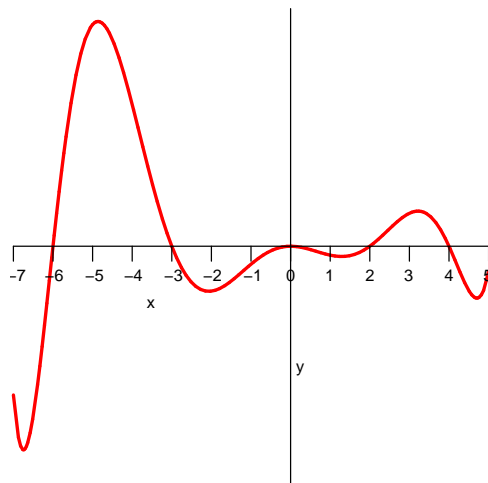
In Exercises 4 through 6, sketch the graph of the *derivative* of a function f that is continuous on $[1, 5]$ and has the given properties.

Exercise 4. Absolute minimum at 2, absolute maximum at 3, local minimum at 4.

Exercise 5. Absolute minimum at 1, absolute maximum at 5, local maximum at 2, local minimum at 4.

Exercise 6. 2 and 4 are critical points but neither is an a local extremum.

Exercise 7. The graph of the *derivative* of the function f is plotted below on the interval $[-7, 5]$. Find and classify all of the critical points of f in $(-7, 5)$.



Exercise 8. The graph of the *derivative* of the function f is plotted below on the interval $[-3, 3]$. Find and classify all of the critical points of f in $(-3, 3)$.

