Spring Breaking News

Andrew R. Booker of the University of Bristol discovered that

$$33 = (8866128975287528)^3$$
$$+ (-8778405442862239)^3$$
$$+ (-2736111468807040)^3$$

Currently, there is no known representation of the number 42 as a sum of three cubes. Check out the YouTube video.

Announcement: Special lecture tonight

2019 Sue Geller Undergraduate Lecture
Tuesday, March 19, 6:00–7:00pm in Blocker 117
Laura DeMarco of Northwestern University will speak on
"The Mandelbrot set: What we know today"
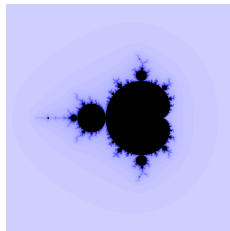
Reminder

The second exam takes place in class on March 28
(Thursday of next week).

Extreme-value theorem

Theorem
*A **continuous** function on a closed bounded interval $[a, b]$ attains a maximum value at some point in the interval (and attains a minimum value at some other point in the interval).*

Local extrema

Theorem (Fermat)

*If f has a **local** extreme value when $x = c$, and if $f'(c)$ exists, then $f'(c) = 0$.*

Algorithm for finding global extreme values of f on $[a, b]$

1. Find the *critical numbers* of f: numbers where either f' equals 0 or f' does not exist.
2. Find the value of f at each critical number.
3. Check the value of f at each endpoint of the interval.

Assignment (not to hand in)

- Section 4.1, Exercises 3, 7, 9, 17, 21, 25, 27, 29, 31, 35, 43, 47, 49, 59, 77.