MATH 242 — 6 October 2025

The Collatz function:

$$Col(n) = \begin{cases} 3n+1 & \text{if } n \text{ is odd} \\ \frac{n}{2} & \text{if } n \text{ is even} \end{cases}$$

The Collatz conjecture: For any positive starting value n, the Collatz trajectory eventually reaches 1.

↳ sequence of Collatz iterates

example: $5 \to 16 \to 8 \to 4 \to 2 \to 1$

↖ height

Stopping time

$stop(5) = \text{length} - 1$