MATH 242 — 11 March 2026

From the Veritasium video on the Collatz conjecture:

- What did you find most interesting?
- What questions do you have?

TODAY: Change $3n+1$ to $3n-1$

define: $$\text{ColVar}(n) = \begin{cases} 3n-1 & \text{if } n \text{ is odd} \\ \frac{n}{2} & \text{if } n \text{ is even} \end{cases}$$

these cases are the same by symmetry but with opposite +/- signs

ColVar: 3 loops (or cycles)

$2 \to 1$

$5 \to 14 \to 7 \to 20 \to 10$

$17 \to 50 \to 25 \to \cdots \to 34$