

Collatz Function:

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

Examples: $\text{col}(1) = 4$, $\text{col}(2) = 1$, $\text{col}(3) = 10$,
 $\text{col}(4) = 2$, $\text{col}(5) = 16$, $\text{col}(6) = 3, \dots$

What happens if I iterate this function?

e.g. $n=5$: $\text{col}(5) = 16$, $\text{col}(16) = 8$, $\text{col}(8) = 4$,
 $\text{col}(4) = 2$, $\text{col}(2) = 1$, $\text{col}(1) = 4$,

We find a cycle $4 \rightarrow 2 \rightarrow 1 \rightarrow 4$