

Computer Science

What is a computer?

- A machine that does math
- Input \rightarrow Output
- Computes
- Artificially solves problems
- Code + electric signals

What is science?

- System of inquiry + investigation
- Specific field of study
- Study of nature + dynamics of _____
- Way of understanding natural world

Why study CS?

- Many applications — make money, contribute to human flourishing,
- Beautiful ideas, learn new ways of thinking.
- Being an engaged citizen

Start with a number n .

Repeat until $n = 1$:

If n is even, divide it by 2.

Otherwise, multiply it by 3 and then add 1.

Output the number of repetitions needed to reach 1.

Example

$13 \rightarrow 40 \rightarrow 20 \rightarrow 10 \rightarrow 5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$
(8 reps.)

50 : 24

17 : 12

13 : 9

14 : 18

239 : ?

9 : 19