

Aspects of Algorithms

Algorithm = sequence of instructions to carry out a computation.

- ① Input
- ② Output
- ③ Arithmetic
- ④ Conditionals (if)
- ⑤ Repetition (loops)

Start w/ n .
⑤ Repeat until $n = 1$:
④ If n even, divide by 2
Otherwise, $\frac{x3 + 1}{3}$
Output # of steps.
②

Errors

3 kinds:

- ① Syntax error — program is not even a valid program
e.g. grammar, spelling errors.
- ② Semantic error — program is valid, but doesn't do what you want.
- ③ Runtime error — something goes wrong while program is running which causes it to stop/crash.