* Why to build electronic chips or circuits?

① Take advantage of speed of electricity + controlled flow (ON, OFF)

② Compute things in less time
⟹ Lead to development/growth faster / Evolution

Three basic operations

Add (+)   Subtract (−)   Complement (·)

* Add + complement
    or
Subtract + complement } ⟶ functionally complete

Any other complex mathematical operation can be derived from these.

⇓

Advantage ?

⇓

Build ckt for Addition (ADDER) and complement

⇓

Combine these two to perform any other mathematical operation like Multiply, Division

⇓

This leads to development of [ALU].

⇓

Eventually 8080 µp was built with basic mathematical ckts

⇓

Combine efforts of Multiple physicist, Mathematician, scientists lead to current state of computing / computers

⇓

* Each abstraction in computing is result or improvisation of previous