$5! = 5 \times 4 \times 3 \times 2 \times 1$

Recursion

why! → when the function call itself → calling

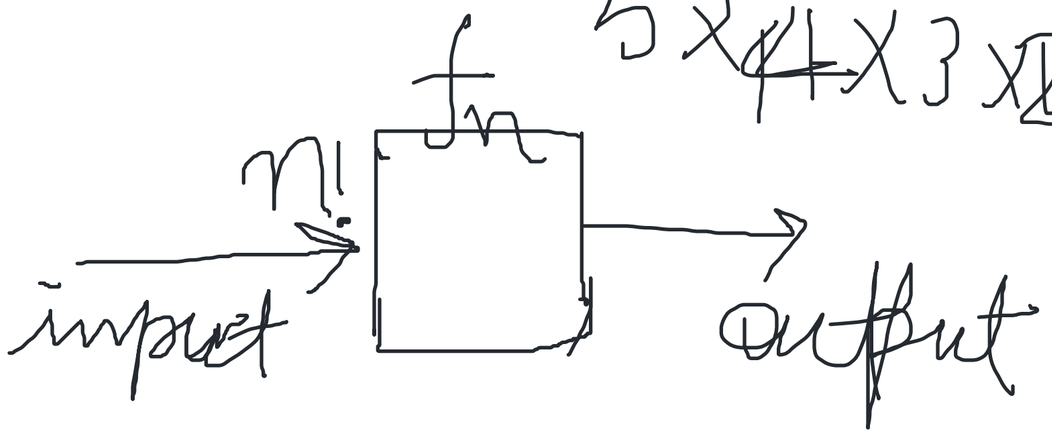
factorial

$$n! = (n-1) * (n-2) * (n-3) \ldots\ldots 1$$

$5! = 5 \times 4! \to 4 \times 3! \to 3 \times 2! \to 2 \times 1$

$5 \times 4 \times 3 \times 2 \times 1$

$n! = n * (n-1)!$



$n! = n * (n-1)!$

$fact(n) = n * fact(n-1)$ → smaller input

$(n-1) * fact(n-2)$

we in any way we are reducing the size of the problem one by one till it becomes trivial or easier

$fact(n) = n * fact(n-1)$

reach the trivial → smallest case we will return the output & we will not call the recursion.

5!

5!

4!

3!

2!

1!

0!

-1!

-2!

-3!

returning 1

Infinitely

Base case / Primal case

5x4!

4x3!

3x2!

2x1!

1x0!

-1x-2!

120

24

6

2

1

1