



Advent of Mathematical Symbols

Euler's phi function: $\varphi : \mathbb{N} \longrightarrow \mathbb{N}$
 $\mathbb{N} = \{1, 2, 3, \dots\}$

Examples: $\varphi(4) = 2$ $[1, \cancel{2}, 3, \cancel{4}]$

$\varphi(5) = 4$ $[1, 2, 3, 4, \cancel{5}]$

$\varphi(p) = p - 1$ for p prime

$\varphi(n) =$ count numbers $a \in \mathbb{N}$ with

- (1) $a \leq n$
- (2) $\gcd(a, n) = 1$ (mutually prime)