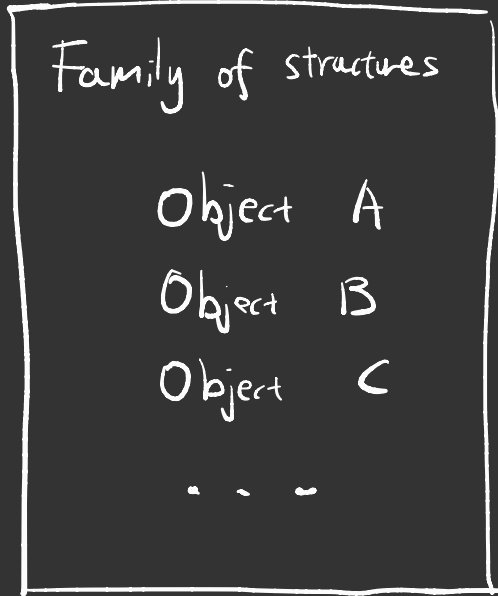


What is abstraction?

Abstraction level  $n$



Abstraction Level  $n+1$

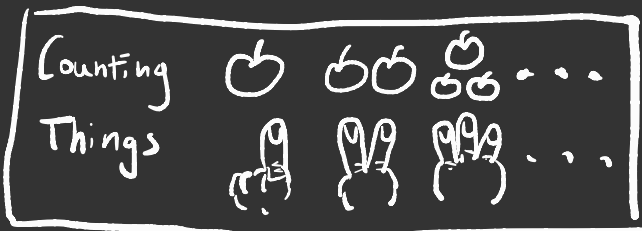


New Concept

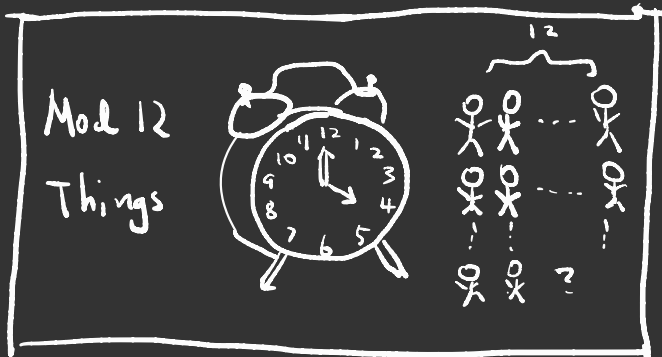
Abstraction level 0



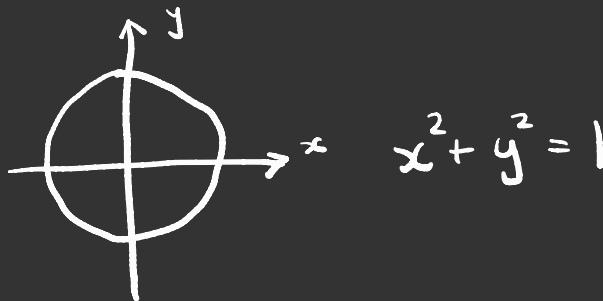
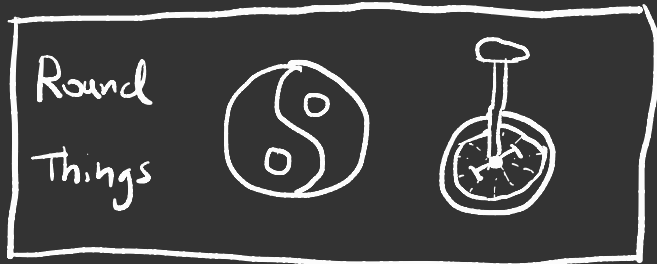
Abstraction level 1



1, 2, 3, ...



0 mod 12, 1 mod 12, ..., 11 mod 12



Abstraction Level 1



Abstraction Level 2

Number Systems

$\mathbb{Z}, \mathbb{Q}, \mathbb{R}, \mathbb{C}, \mathbb{Z}[F]$



Rings

Symmetries



$\text{Gal}(f)$



Groups

Shapes

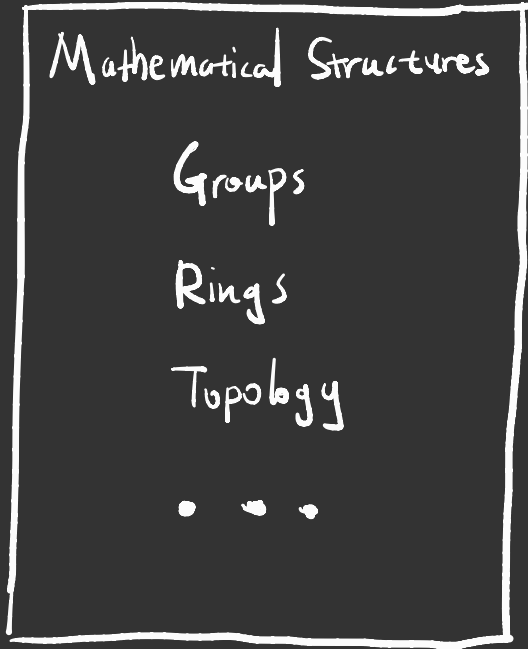


Topology

Abstraction Level 2



Abstraction Level 3



Category

Abstraction Level 3  $\implies$  Abstraction Level 4



2-Category of categories  
CAT