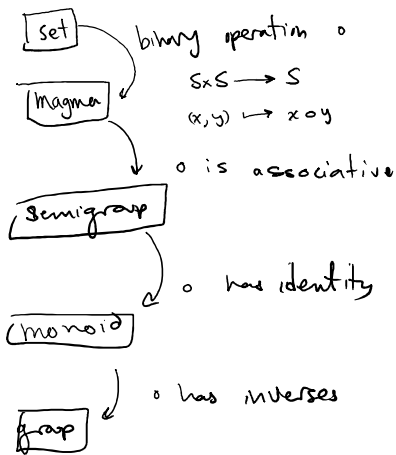


Algebraic Structures.



— numerical semigroups

- additive subset of  $\mathbb{Z}_{30}$

- includes 0

- has finite complement

-  $\langle 6, 9, 20 \rangle$  chicken McNugget Monoid

Let  $S$  be a set.

def a law of composition of  $S$ ,  $\circ$ , or a binary operation, is a map  $S \times S \rightarrow S$ .

examples of monoids

·  $(\mathbb{N}, +, 0)$

·  $(\mathbb{N}, \cdot, 1)$

·  $\mathbb{Z} +$  or  $\cdot$

·  $(\mathcal{P}(S), \cup, \emptyset)$

·  $(\mathcal{P}(S), \cap, S)$

