

# Review

**Review**

- Finite Automata
  - Given DFA or NFA  $M$ , find  $L(M)$ .
  - Given a language  $L$ , design DFA or NFA  $M$ , such that  $L(M) = L$ .
  - Convert NFA to DFA
  - Construct NFAs that recognize the union, concatenation, and star of languages.
  - DFAs with outputs
- Regular Languages
  - Properties
  - Regular operations

**Review (cont'd)**

- Regular Expressions
  - Convert DFAs into regular expressions.
  - Convert regular expressions to NFAs.
- Showing regular or non-regular
  - pumping lemma
- Context-Free Language (CFL)
  - Context-free grammar (CFG)
  - language of a grammar
  - Given a grammar  $G$ , find  $L(G)$ .
  - Given a language  $L$ , design CFG  $G$ , such that  $L(G) = L$
  - Leftmost derivation
  - Ambiguous grammar, language