Chapter 7 outline:

- ▶ Recursively-defined sets (last week Monday)
- ▶ Structural induction (Monday)
- ▶ Mathematical induction (Wednesday)
- ▶ Non-recursive programs—loops (**Today**)
- ▶ Loop invariant proofs (next week Monday)
- ▶ ~~A language processor~~ The Huffman encoding (next week Wednesday)

Last time we saw self-referential proofs for propositions quantified over the natural numbers and whole numbers (**mathematical induction**).

This time we see imperative-style programs.

Next time we see how mathematical induction can be used to prove propositions about the correctness of imperative-style programs.

Uses of **variables** (in math):

▶ A variable can be a convenient substitute for a specific value.

▶ A variable can refer to a specific, though unknown, value.

▶ A variable can be a place-holder for a value to be supplied by context.

▶ A variable can range over a set.

For next time:

Read 7.5

(No exercises or quiz)