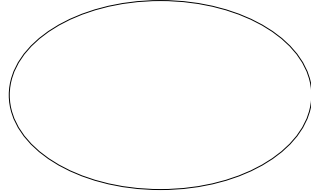
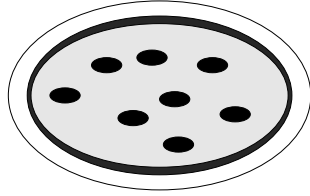


Chapter 7 outline:

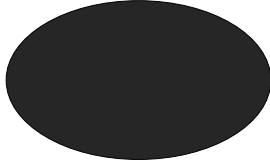
- ▶ Recursively-defined sets (**Today**)
- ▶ Trees (next week Monday)
- ▶ Structural induction (next week Wednesday)
- ▶ Mathematical induction (next week Friday)
- ▶ Loops (week-after Monday)
- ▶ Loop invariants (week-after Wednesday)

Today: Recursively defined sets and types

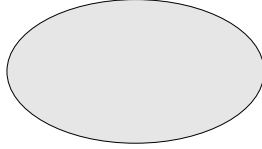
- ▶ What a recursively-defined set is
- ▶ Classes—programmer-defined types
- ▶ The Peano definition of whole numbers
- ▶ Homemade lists



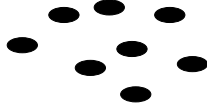
crust—trivial pizza



just-sauce pizza



cheese pizza



pepperoni pizza

Axiom 7.1 There exists a whole number 0.

Axiom 7.2 Every whole number n has a successor, denoted as $S(n)$.

Axiom 7.3 No whole number has 0 as its successor.

Axiom 7.4 For all whole numbers a and b , if $S(a) = S(b)$ then $a = b$.

For next time:

Do Ex 7.1.(6, 8, 12, 13, 14, 15)

Read Section 7.2

(No quiz)