Exercises for Lecture 3

- 1. Let W be the set of all women in the world. Express the following formulas in natural language:
 - (a) $\forall w \in W. w$ likes chocolate
 - (b) $\exists w \in W. w$ is a mother
 - (c) $\neg \exists w \in W. w$ is a father
- 2. Determine whether the following claims are true or not (no proofs!), and rewrite the claims as formulas containing quantifiers.
 - (a) every natural number is positive
 - (b) every integer is smaller than (or equal to) 0 or greater than 0
 - (c) all integers are prime numbers
 - (d) there exists a natural number which is greater than 7
 - (e) there is no natural number which is smaller than 7
 - (f) every integer is a prime number
 - (g) if x is an integer, then x^2 is greater than or equal to 0