HOMEWORK 6
DISCRETE MATHEMATICS I
DUE 02-07

Show your work!

(1) For this problem, the universe of discourse for x is "people in this class". There are twelve people in this class: Daniel, Alexis, Jackie, Ashlee, David, Nguyen, Alissa, Amy, Ronnie, Aakash, Pat, and James.
   (a) Write a statement that is logically equivalent to $\forall x.P(x)$ but that does not use quantifiers.
   (b) Write a statement that is logically equivalent to $\exists x.P(x)$ but that does not use quantifiers.

(2) Explain your answers.
   (a) Suppose that the universe of discourse for x consists of exactly one object. What is the relationship between the statements $\forall x.P(x)$ and $\exists x.P(x)$?
   (b) Suppose that the universe of discourse for x has **no objects**; that is, that it is empty. Is $\forall x.P(x)$ true or false? Is $\exists x.P(x)$ true or false?

- **Eight** book problems: #1.3.14, 15, 21, 45, 47, 48, 49, 50.