## Homework 1, Math 310, due September 10

- (1) Decide whether the following sentences are mathematical statements or not.
  - (a) Where are my car keys?
  - (b) The earthworm soup is cold and the cactus milkshake is warm.
  - (c) Keep your elbows off the table!
  - (d) There are no zeros in the decimal expansion of  $\pi$ .
  - (e) There are more than three grammatical errors in *Ulysses* by James Joyce.
- (2) Let P be a statement. Write truth tables for the statements,  $P \wedge \neg P$  and  $P \vee \neg P$ .
- (3) Let P, Q, R be statements. Write truth tables for  $(P \lor Q) \Rightarrow R$ and  $(P \Rightarrow R) \land (Q \Rightarrow R)$ .
- (4) Write truth tables for  $A \Rightarrow (B \lor C)$  and  $(A \land \neg B) \Rightarrow C$ .