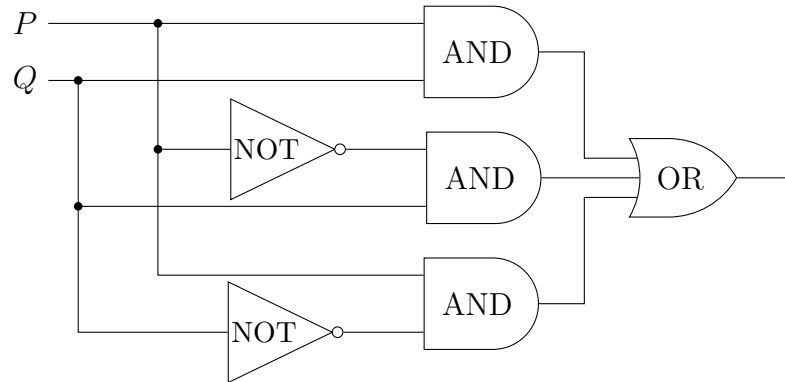# Tutorial Week 1

1. Are the following circuits logically equivalent?

   (a)

   (b)

2. You are travelling in a country where every inhabitant is either a truth-teller who always tells the truth or a liar who always lies. You meet two of the inhabitants of this country, Bart and Homer. Bart says, "At least one of us is a liar." Can you tell whether Bart and Homer are liars or truth-tellers? If so, what are they, and how do you know for sure? If not, why not? (No need for a formal proof, but your reasoning should still be clear and irrefutable.)

3. Rewrite the following statements in if-then form

   (a) Catching the 8:05 bus is a sufficient condition for my being on time for work

   (b) Payment will be made on the fifth unless a new hearing is granted.