

FCS152 Tutorial 3

Methods of Proof

1. What are the rules of inference used in the following:
 - (a) If I work all night on this homework, then I can answer all the exercises. If I answer all the exercises, I will understand the material. Therefore, if I work all night on this homework, then I will understand the material.
 - (b) If it does not rain or if it is not foggy, then the sailing race will be held and the life sailing demonstration will go on. If the sailing race is held, then the trophy will be awarded. The trophy was not awarded. Therefore, it rained.
2. Determine whether the following argument is valid:
 - a. Nothing intelligible ever puzzles me.
Logic puzzles me.
Hence Logic is not intelligible.
 - b. Every hardworking student will not fail the exam.
Any student addicted to computer games is not hardworking.
John fails his exam.
Hence John is addicted to computer games.
3. Determine whether the following argument is valid. If it is valid, what rule of inference is used? Is it not, what fallacy occurs:

"There will not be a computer in every home, unless there are computers cost less than \$500. The local shop has a computer which cost under \$500. Therefore there must be a computer in every home. "
4. Prove or disprove the following statements:
 - (a) There is no greatest negative real number.
 - (b) If a sum of two real numbers is less than 50, then at least one of the numbers is less than 25.
 - (c) Every positive integer can be written as the sum of the squares of two integers.