

Math 751 Fall 2010 Test 1 questions (Two problems total).

1. Prove that all open games are determined by the method involving non-losing quasi-strategies. In particular, when player I does not have a winning strategy for a game, then prove the “non-losing” quasi-strategy exists for player II, define this non-losing quasi-strategy, and prove that the game being open implies that this quasi-strategy is in fact a winning quasi-strategy for player II. Also don’t forget to set up the overall problem, starting with picking an open set and ending with that one of the two players has a winning quasi-strategy. It is fine if you use strategies over quasi-strategies.
2. Prove that all open games are determined by the method involving ordinals of positions. Make sure pick appropriately pick an arbitrary open set, to define $Ord_A(\alpha) \subseteq X^{<\omega}$ for each ordinal α so that $Ord_A(\alpha) \subseteq Ord_A(\beta)$ if $\alpha < \beta$, and to also define Ord_A . Prove that the claim that if the empty sequence $\langle \rangle \in Ord_A$, then player I has a winning quasi-strategy for the game A . Prove another claim that if the empty sequence $\langle \rangle \notin Ord_A$, then player II has a winning quasi-strategy for the game A . Then use the two claims to indicate that one of the two players has a winning quasi-strategy. It is fine if you use strategies over quasi-strategies.