Quiz 1

Your NAME:

ID#:

1. (6 pts.) Determine whether \([p \rightarrow q] \land (q \rightarrow r) \rightarrow (p \rightarrow r)\) is a tautology.

2. (4 pts.) What are the domain and the range of the function that assigns to each positive integer \(n\) the largest integer not exceeding the square root of \(n\)?

3. (10 pts.) In your homework you showed that at least one of the real numbers \(a_1, a_2, \ldots, a_n\) is greater than or equal to the average of these numbers. Use that result to show the following: if the first 10 positive integers are placed around a circle, in any order, there exist three integers in consecutive locations around the circle that have a sum greater than or equal to 17.