Problemset 2.

Due Oct 16, 2000

Q1. Show that a martingale that is almost surely a continuous function of bounded variation, is a constant.

Q2. The Poisson process $x(t)$, with rate 1, has the following properties.

1) $x(t) - t$ is a Martingale

2) $(x(t) - t)^2 - t$ is a Martingale

3) The process $x(t)$ changes only by increments of size one, i.e. it is a counting process.

Is every process satisfying 1), 2) and 3) the Poisson process with rate 1?

Are all the three conditions needed?