CSCE 317 Spring 2015
Quiz 4
Assigned Tuesday, 15-02-03

1. This question is from the textbook (p.40 [M]).

    > Suppose we have a room full of n disks. Each disk independently dies with probability p each year. How are the following quantities distributed?

    (a) The number of disks that die in the first year **Answer:** Binomial (n,p)

    (b) The number of years until a particular disk dies **Answer:** Geometric(p)

    (c) The state of a particular disk after one year **Answer:** Bernoulli(p)

2. Here are the definitions of three kinds of variables: random variables, propositional variables, and variables in first-order logic. Which one is which?

    (a) An element of the domain of discourse **Answer:** FOL

    (b) A real-valued function of the outcome of an experiment **Answer:** random variable (p.37 [H])

    (c) A function from the set of outcomes Ω to a subset $\mathcal{A}$ of the event space $\mathcal{F}$ containing mutually exclusive and exhaustive events. **Answer:** propositional variable. This is the definition I used in class on 2015-01-29, which is a shortened version of definition 5.1 in: Richard E. Neapolitan. *Probabilistic Reasoning in Expert Systems: Theory and Algorithms.* Wiley, 1990.