Homework 7

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3. Teams A and B play a series with the first team to win three games being the series winner. Suppose Team A wins each game with probability p. Find the conditional probabilities that:

   (a) Team A wins the series given that it wins game 1?

   (b) Team A wins game one given that it wins the series?

4. A certain region has an average of 5.2 hurricanes per decade. What is the probability that 3 or fewer hurricanes hit this region over the next ten years?

5. The score on an IQ test obtained by a random test taker is a normal random variable with mean 100 and standard deviation 15. What are the probabilities that:

   (a) The score of a random test taker is more than 125?

   (b) The score of a random test taker is between 90 and 110?

6. A tobacco company claims that the amount of nicotine in one of its cigarettes is a random variable with mean 2.2 mg and standard deviation .3 mg. A lab tests the nicotine content of 100 randomly chosen cigarettes produced by the company and finds that the average nicotine content in this sample is 3.1 mg. Approximate the probability that the lab would get this outcome if the company?s claims are true.