Tutorial 2 Outline

Probability

Sept. 21, 22, 23

Page 34 - Example 5d,e,i

Example 5d

An urn contains n balls, one of which is special. If k of these balls are withdrawn one at a time, with each selection being equally likely to be any of the balls that remain at the time, what is the probability that the special ball is chosen?

Example 5e

Suppose that n + m balls, of which n are red and m are blue, are arranged in a linear order in such a way that all (n + m)! possible orderings are equally likely. If we record the result of this experiment by listing only the colors of the successive balls, show that all the possible results remain equally likely.

Example 5i

If n people are present in a room, what is the probability that no two of them celebrate their birthday on the same day of the year? How large need n be so that this probability is less than 0.5?

Page 52 - Theoretical Exercise 4 - part 1

Exercise 4 - Part 1

$$\left(\bigcup_{i=1}^{\infty} E_i\right)F = \bigcup_{i=1}^{\infty} (E_iF)$$

Page 52 - Theoretical Exercise 6b,d,h

Let E, F, and G be three events. Find expressions for the events so that, of E, F, and G:

Exercise 6b

Both E and G, but not F occur.

Exercise 6d

at least two of the events occur.

Exercise 6h

at most two of the events occur. Solutions for 6 may vary.