

# BIOS 600 · Quiz 3.2: Basic Probability

Fall 2011

1. **Honor Pledge:** I have neither given nor received unauthorized aid on this assignment.  
(Sign and print your name.)

2. Suppose that the failure rate (failing to detect smoke when smoke is present) for a brand of smoke detector is 1 in 100. For safety, two of these smoke detectors are installed in a laboratory.

(a) What is the probability that both smoke detectors fail to sound when smoke is present?

(b) What is the probability that at least one smoke detector sounds when smoke is present? (*Hint: What is the complement of "at least one smoke detector sounds"? Think complement rule.*)

3. [Adapted from 100.] Two tickets are drawn at random **WITH** replacement from the following box

1	2	3	4
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(a) What is the chance that the second ticket is 4?

(b) What is the chance that the second ticket is 4, given that the first is 2?

(c) What is the probability that 2 is drawn first and 4 is drawn second?