

**HOMEWORK 4**  
STA320.01, Probability  
Fall Semester, 2013

**Due:** Thurs Oct 17th 2013

- 1** According to Financial Executive (July/August 1993) disability causes 48% of all mortgage foreclosures. Given that 20 mortgage foreclosures are audited by a large lending institution, what is the probability that less than 8 mortgage foreclosures are due to a disability?
- 2** Ninety percent of the trees planted by a landscaping firm survive. What is the probability that of the next 13 trees planted:  
(a) at most ten will survive? (b) at least ten will survive? (c) exactly ten will survive?
- 3** A machine produces parts of which 0.5% are defective. If a random sample of ten parts produced by this machine contains more than one defective part, the machine is shut down for repairs. Find the probability that the machine will be shut down for repairs based on this sampling plan.
- 4** According to an article in the February 1991 issue of Readers Digest, Americans face a 1 in 20 chance of acquiring an infection while hospitalized. If the records of 15 randomly selected hospitalized patients are examined, find the probability that:  
(a) at least two develop an infection? (b) none develop an infection?
- 5** Suppose that you take a five-question multiple-choice quiz by guessing. Each question has possible answers a, b, c, d and only one is correct.  
(a) What is the probability that you guess more than half of the answer correctly? (b) What is the probability that the first question is correct if guessing?