Lunds Universitet
Matematik MNF
Matematikcentrum

Tentamensskrivning

Quiz 1, Probability 425
July 31, 1998
1:10-1:40 pm

Closed book examination, calculators allowed. Explain your reasoning as clearly as you possibly can.

1. Floppy Inc makes the following guarantee on their packages of 10 diskettes: if at least one of the diskettes is defective, then a customer may return the package for a full refund. Suppose there is a 3% chance that an individual diskette is defective.
(a) Define the random variable X to be the number of defective diskettes in a given package. Does X have a familiar distribution? If so, what is it?
(b) Using your answer to part (a), compute the mean (expected value) of X.
(c) What is the probability that a customer will be eligible to return his or her package of diskettes?
(c') How likely is it that more than one diskette will be defective in a given package?
(d) Suppose that a customer returns a package containing 1 defective diskette. Let Y be the number of working diskettes that the clerk tests before he discovers the defective one.
(d1) Does Y have a familiar distribution? If so, what is it?
(d2) Compute $P(Y = 2)$.