

HW 13 Due : Wednesday, Dec. 4

- (1) (60 pts) Assume that 10% of all plants in a field are infested with aphids. Suppose that you pick 20 plants at random.
- (a) Compute the expected value and the variance of the number of plants in a field are infested with aphids.
 - (b) What is the probability that none of them carried aphids?
 - (c) What is the probability that at least two of them carried aphids?
 - (d) What is the probability that at most three of them carried aphids?
(Hint: This is related to Binomial distribution.)
- (2) (40 pts) A random experiment consists of flipping a fair coin until the first time heads appears.
- (a) Find the probability that the first heads appears on the fourth trial.
 - (b) Find the probability that the first heads appears after the fourth trial.
(Hint: This is related to geometric distribution.)