

STAT 479
Spring 2022
Quiz 3
February 22, 2022

1. Let N^L be the random variable representing the number of losses for a dental policy with no deductible. N^L is distributed as a Negative Binomial with $\gamma = 2$ and $\beta = 1$.

Let N^P be the random variable representing the number of losses for the same dental policy with a deductible of 50.

Each loss under the dental policy is distributed as a Pareto distribution with $\alpha = 4$ and $\theta = 200$.

Calculate $Var[N^P]$.

2. Anderson Assurance Association (AAA) has this portfolio of policies. Each policy is independent of the other policies.
- a. 200 insureds who are factory workers. The probability of death for each insured who is a factory worker is 0.08. The amount of death benefit is uniformly distributed between 1000 and 2000.
 - b. 100 insureds who are executives. The probability of death for each insured who is an executive is 0.05. The amount of death benefit is 10,000 for all executives.

Let S be the random variable representing the total losses paid during the next year.

Calculate $Var[S]$.