

**STAT 479**  
**Quiz 3**  
**Spring 2017**  
February 28, 2017

1. For an insurance company, each loss has a mean of 200 and a variance of 200. The number of losses follows a Poisson distribution with a mean of 400. Each loss and the number of losses are mutually independent.

The loss ratio for the insurance company is defined as the ratio of aggregate losses to the total premium collected.

The premium collected is 110% of the expected aggregate losses.

Using the normal approximation, calculate the probability that the loss ratio will exceed 95%.

2. Let  $N$  be the random variable representing the number of claims under a dental insurance policy.  $N$  is distributed as follows:

$n$	$p_n$
1	0.2
2	0.5
3	0.3

Let  $X$  be the random variable representing the amount each claim incurred under the same dental insurance policy.  $X$  is distributed as follows:

$x$	$\Pr(X = x)$
100	0.40
200	0.35
425	0.25

A stop loss policy is purchased for this dental policy with an aggregate deductible of 825.

Calculate the net stop loss premium for this policy.