## Limited Fluctuation Credibility Homework Problems

- 1. Assuming that frequency is distributed as a Poisson distribution, for P = 98% and k = 10%, what is the number of claims required for full credibility for estimating the frequency?
- 2. Assuming that frequency is distributed as a Poisson distribution, how many claims are required for Full Credibility if one requires that there be a 95% chance of the estimated frequency being within 1% of the true value?
- 3. Assuming that frequency is distributed as a Poisson distribution, the full credibility standard for a company is set so that the total number of claims is to be within 4% of the true value with probability P. This full credibility standard is calculated to be 961 claims. What is the value of P?
- 4. A Standard for Full Credibility has been established for frequency assuming that the frequency is Poisson. If instead the frequency is assumed to follow a Negative Binomial Distribution with parameters g = 2 and b = 0.5, what is the ratio of the revised Standard for Full Credibility to the original one?
- 5. The claim amount distribution has mean 500 and variance 1,000,000. Find the number of claims required for full credibility if you require that there will be a 95% chance that the estimate of severity is correct within 5%.
- 6. You are given the following information:
  - A standard for full credibility of 2,000 claims has been selected so that the actual pure premium would be within 10% of the expected pure premium 99% of the time.
  - (ii) The number of claims follows a Poisson distribution.

Using the classical credibility concepts determine the coefficient of variation of the severity distribution underlying the full credibility standard. The

coefficient of variation is  $\frac{\sigma_{\chi}}{\mu_{\chi}}$ .

## Answers:

- 1. 541.03
- 2. 38,416
- 3. 0.785
- 4. 1.5
- 5. 6146.56
- 6. 1.41914