

# EXAM C QUESTIONS OF THE WEEK

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## Week of March 6/06

$S$  has a compound distribution with frequency  $N$  and severity  $Y$ .  $N$  and all claim amounts are independent of one another.

Limited fluctuation credibility is being applied to  $S$ , with the full credibility standard based on the sample mean of  $S$  being within 5% of the true mean of  $S$  with probability 90%.

The following information is given regarding the three equivalent full credibility standards for  $S$ .

The expected number of exposures of  $S$  needed for full credibility is 108.24 .

The expected aggregate amount of claim needed for full credibility is 10,824.

The expected total number of claims needed for full credibility is 541.2 .

Find all of the following quantities:  $E(S)$ ,  $Var(S)$ ,  $E(N)$  and  $E(Y)$  .

**Solution can be found below.**

## **Week of March 6/06 - Solution**

$$1082.4 \cdot \frac{Var(S)}{[E(S)]^2} = 108.24 \rightarrow \frac{Var(S)}{[E(S)]^2} = .1 ,$$

$$1082.4 \cdot \frac{Var(S)}{E(S)} = 10,824 \rightarrow \frac{Var(S)}{E(S)} = 10 .$$

Then,  $E(S) = \left[ \frac{Var(S)}{E(S)} \right] / \frac{Var(S)}{[E(S)]^2} = 10/.1 = 100$  , and then  $Var(S) = 10E(S) = 1000$  .

$$1082.4 \cdot \frac{Var(S)}{[E(S)]^2} \cdot E(N) = 541.2 \rightarrow E(N) = 5 .$$

Since  $E(S) = E(N) \cdot E(Y)$  , we have  $100 = 5E(Y) \rightarrow E(Y) = 20$  .