

Question #126

Key: C

Let X be the loss random variable,

So $(X - 5)_+$ is the claim random variable.

$$E(X) = \frac{10}{2.5 - 1} = 6.\bar{6}$$

$$\begin{aligned} E(X \wedge 5) &= \left(\frac{10}{2.5 - 1} \right) \left[1 - \left(\frac{10}{5 + 10} \right)^{2.5 - 1} \right] \\ &= 3.038 \end{aligned}$$

$$\begin{aligned} E(X - 5)_+ &= E(X) - E(X \wedge 5) \\ &= 6.\bar{6} - 3.038 \\ &= 3.629 \end{aligned}$$

$$\begin{aligned} \text{Expected aggregate claims} &= E(N)E(X - 5)_+ \\ &= (5)(3.629) \\ &= 18.15 \end{aligned}$$