EXAM C QUESTIONS OF THE WEEK

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Week of July 23/07

For a particular loss random variable X, if an ordinary deductible of 1000 is applied, the mean excess loss is 3500. If the deductible of 1000 is applied to X as a franchise deductible, then the expected cost per loss is 3600. Find the expected cost per loss if the deductible of 1000 is applied as an ordinary deductible.

The solution can be found below.

Week of July 23/07 - Solution

For an ordinary deductible of 1000, the mean excess loss is $\frac{E[(X-1000)_+]}{S(1000)} = 3500$,
where $S(1000) = P(X > 1000)$.

For a franchise deductible, the expected cost per loss is
$E[(X - 1000)_+] + 1000S(1000) = 3600$.

Therefore, $E[(X - 1000)_+] = 3500\,S(1000)$, and it follows that
$3500\,S(1000) + 1000\,S(1000) = 3600$, from which we get $S(1000) = .8$.
Then, $E[(X - 1000)_+] = 3500(.8) = 2800$ is the expected cost per loss if the deductible of
1000 is applied as an ordinary deductible.