

EXAM M QUESTIONS OF THE WEEK

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Week of January 30/06

A 2-year fully discrete endowment insurance policy with level premiums issued at age x has a death benefit of 2000 and an endowment benefit of 1000. The policy expenses are as follows:

	1st Year	2nd Year
Percent of Premium	50%	20%
Per Policy	100	20

The policy is based on a two-decrement model, with decrement 1 being death and decrement 2 being policy cancellation. Cancellation can only occur at the end of the first year. Interest is at a rate of $i = 0.25$, and mortality probabilities are $q_x^{(1)} = 0.2$, $q_{x+1}^{(1)} = 0.5$, and the policy cancellation probability is $q_x^{(2)} = 0.3$.

With a premium of $G = 1,186.56$ and a first year cash value of ${}_1CV = 270.25$, find the expected second year-end asset share, ${}_2AS$.

The solution can be found below.

Week of January 30/06 - Solution

$$[1, 1856.56(.5) - 100](1.25) - 2000(.20) - 270.75(.3) = (.5)_1AS \rightarrow {}_1AS = 270.75 .$$

$$[270.75 + 1, 1856.56(.8) - 20](1.25) - 2000(.5) = (.5)_2AS \rightarrow {}_2AS = 1000 .$$