

EXAM MLC QUESTION OF THE WEEK

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Week of April 7/08

A fully discrete whole life insurance policy issued at age x has face amount 1,000,000 .

The policy expenses are:

	1st Year	Renewal Years
Percent of Premium	20%	5%
Face Amount	5 per 1000	1 per 1000
Per Policy	1000	200
Settlement	1000 (at the end of the year of death)	

You are given that $i = .1$ and $\ddot{a}_x = 8.8187$.

Find the expense-loaded premium using the equivalence principle.

The solution can be found below.

Week of April 7/08 - Solution

$$G\ddot{a}_x = 1,000,000A_x + .2G + .05Ga_x + 5,000 + 1000 + (1000 + 200)a_x + 1000A_x$$

$$G = \frac{1,001,000A_x + 6,000 + 1200a_x}{.95\ddot{a}_x - .15} .$$

$$A_x = 1 - d\ddot{a}_x = 1 - \frac{.1}{1.1} \cdot (8.8187) = .983 .$$

$$G = \frac{1,001,000(.983) + 6,000 + 1200(7.8187)}{.95(8.8187) - .15} = 25,995.00 .$$