

EXAM MLC QUESTIONS OF THE WEEK

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Week of August 27/07

A fully discrete whole life policy with death benefit of \$100,000 is issued to (35) . The annual benefit premium is \$1200, the 30th year terminal benefit reserve is \$40,000 and the 31st year terminal reserve is \$42,405.

Based on the same mortality table and interest rate as the first policy, another fully discrete policy has a death benefit of \$100,000 up to age 65 and \$200,000 after age 65. The annual benefit premium is \$1200 payable for the first 30 years, and the benefit premium is 6400 payable from age 65 on. The 31st year terminal benefit reserve is \$45,791.

Find q_{65} .

The solution can be found below.

Week of August 27/07 - Solution

Using the accumulation relationship for benefit reserves from time 30 to time 31, we have

$$(40,000 + 1200)(1 + i) - (100,000 - 42,405)q = 42,405$$

for the first policy, and

$$(40,000 + 6400)(1 + i) - (200,000 - 45,791)q = 45,791$$

for the second policy.

Solving these two equations for i and q results in $i = .06$ and $q = .022$.