

MATH 3630 - Actuarial Mathematics I

Fall 2017 - Valdez

Quiz No. 2

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Student ID: Suggested Solution

The mortality for Tim is described below:

- For the first year, he will have a constant force of mortality of 0.20.
- Thereafter, he will have a constant force of mortality of 0.05.

Calculate the 5-year temporary complete life expectancy for Tim.

$$\begin{aligned} \ddot{e}_{x:\overline{5}|} &= \ddot{e}_{x:\overline{1}|} + p_x \ddot{e}_{x+1:\overline{4}|} \\ &= \int_0^1 e^{-.20t} dt + e^{-.20} \int_0^4 e^{-.05t} dt \\ &= \frac{1}{.20} (1 - e^{-.2}) + e^{-.20} \cdot \frac{1}{.05} (1 - e^{-.05(4)}) \\ &= 3.87456 \end{aligned}$$