

MATH 3631 - Actuarial Mathematics II
Spring 2020 - Valdez
Quiz No. 6
Monday, 6 April 2020

Name: EMIL

Student ID: Suggested Solutions

For a last-survivor insurance on a couple of the same age 50, you are given:

- The death benefit of 1,000 is payable at the end of the year of the second death.
- Annual premiums of P are payable at the beginning of each year the two lives are both alive.
- Their future lifetimes are independent.
- Mortality follows the Standard Ultimate Life Table.
- $i = 0.05$

Calculate P .

NOTE: Please submit your answers with a PDF file starting with your last name followed by an underscore and whatever else you wanna name it. For example, **Valdez_Quiz6.pdf**. Thank you and stay safe.

$$\begin{aligned}
 P \ddot{A}_{50:50} &= \overset{1000 *}{A_{50:50}} = \overset{1000 *}{(2A_{50} - A_{50:50})} \quad \text{only joint lives are shown in the SULT} \\
 \Rightarrow P &= \frac{(2A_{50} - A_{50:50}) * 1000}{\ddot{A}_{50:50}} \\
 &= \frac{0.18931 \cdot 2 - 0.24669}{15.8195} * 1000 \\
 &= 8.339707 \approx \underline{\underline{8.34}}
 \end{aligned}$$