MATH 3630 - Actuarial Mathematics I
Fall 2015 - Valdez
Homework No. 3
due Wednesday, 5:00 PM, 21 October 2015

Please return this page with your signature. Please write your name and student number at the spaces provided:

Name: _____ **Student ID:** _____

I certify that this is my own work, and that I have not copied the work of another student.

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For a whole life insurance of a benefit of 100 on (x) payable at the moment of death, you are given:

$$\mu_{x+t} = \begin{cases} 0.004, & \text{for } 0 < t \leq 10 \\ 0.005, & \text{for } 10 < t \leq 20 \\ 0.006, & \text{for } t > 20 \end{cases}$$

and

$$\delta_t = \begin{cases} 0.02, & \text{for } 0 < t \leq 20 \\ 0.05, & \text{for } t > 20 \end{cases} .$$

1. (1 point) Express the Present Value random variable for this life insurance (note the benefit is 100). You may write this as the random variable Z.

2. (4 points) Calculate the Actuarial Present Value (APV) of the benefit for this insurance, i.e. $\mathrm{E}[Z]$.

3. (5 points) Calculate the variance of Z.