MATH 3631 - Actuarial Mathematics II
Spring 2018 - Valdez
Quiz No. 2
Monday, 5 February 2018

Name: EMIL **Student ID:** Suggested Solution

For a fully discrete whole life insurance of 1,500 on (x), you are given:

- $i = 0.05$
- $q_{x+k} = 0.004$
- $\ddot{a}_x = 16.2$
- The net premium reserve at the end of policy year k is 179.

Calculate the net premium reserve at the end of policy year $k+1$.

Use recursive formula to solve for ${}_{k+1}V$.

First, determine premium:

$$P = 1500\frac{A_x}{\ddot{a}_x} = 1500\left(\frac{1-d\ddot{a}_x}{\ddot{a}_x}\right) = 1500\left(\frac{1}{16.2} - \frac{.05}{1.05}\right) = 21.16402$$

$${}_{k+1}V = \frac{({}_kV + P)(1+i) - Bq_{x+k}}{1-q_{x+k}}$$

$$= \frac{(179 + 21.16402)(1.05) - 1500(.004)}{1-.004}$$

$$= \frac{204.1722}{.996} = 204.9922 \approx \underline{205}$$