

MATH 3631 - Actuarial Mathematics II
Spring 2013 - Valdez
Homework No. 3
due Wednesday, 7:00 PM, March 13, 2013

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.

Signature: _____ Date: _____

For a life insurance issued to (35), you are given:

- The death benefit, payable at the end of the year of death, is equal to \$500 up to age 65 and \$100 thereafter.
- Benefit premiums are level, payable annually, and only for the first 30 years.¹
- The accumulation of all benefit premiums paid, without interest, is refunded at age 65 if the insured is still alive then.
- Mortality follows the **Illustrative Life Table** with $i = 6\%$.
- Deaths are uniformly distributed over each year of age.

- (a) (2.5 points) Calculate the annual benefit premium.
- (b) (2.5 points) Calculate the benefit reserve at the end of 10 years.
- (c) (2.5 points) Calculate the benefit reserve at the end of 10.75 years.
- (d) (2.5 points) Calculate the benefit reserve at the end of 40 years.

¹corrected on 2 March 2013