

**MATH 3630 - Actuarial Mathematics I**  
**Fall 2010 - Valdez**  
**Homework No. 1**  
**due Monday, 6:15 PM, 13 September 2010**

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

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For a certain population, the force of mortality for a newborn is given by

$$\mu_x = \frac{0.5}{x+1}, \quad \text{for } x > 0.$$

1. Derive the corresponding survival function  $S_X(x)$  and demonstrate that it satisfies the important properties of a legitimate survival function.
2. Calculate the probability that a life aged 2 will survive another 3 years.
3. Calculate  ${}_{2|2}q_1$  and interpret this probability.