

Show all work for full credit, and use correct notation. Simplify answers completely.

1. Given a triple decrement model with  $\mu_x^{(1)} = 1$ ,  $\mu_x^{(2)} = 2$ , and  $\mu_x^{(3)} = 3$  determine  ${}_{0.5}q_x^{(2)}$ .

2. For a double decrement model where each decrement is uniformly distributed in the double decrement table, given  $q_x'^{(1)} = 0.20$  and  $q_x'^{(2)} = 0.40$ , determine  ${}_{0.25}p_x'^{(1)}$ .

3. Given a double decrement model where decrement 1 has  $\mu_x^{(1)} = 0.01$  and decrement 2 is DML(100) in the associated single decrement table, determine  ${}_{10}q_{75}^{(1)}$ .

4. For a double decrement model where  $\mu_{x+t}^{(1)} = 2t$ , and decrement 2 is MOY, you are given  $q_x^{(2)} = 0.3$ . Determine  $q_x'^{(2)}$ .

5. For a triple decrement model where decrements 1 and 2 are uniformly distributed in their associated single decrement tables, and decrement 3 is EOY, given  $q_x^{(1)} = 0.1$ ,  $q_x^{(2)} = 0.2$ , and  $q_x^{(3)} = 0.3$ , determine  ${}_{0.5}q_x'^{(2)}$ .