

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

1. Given a double decrement model with constant forces $\mu_x^{(1)} = 0.1$ and $\mu_x^{(2)} = 0.2$, determine

(a) $q_x^{(2)}$

(b) $0.3q_x^{(2)}$

2. Given a double decrement model where decrement 1 is BOY and $q_x^{(1)} = 0.1$, and for decrement 2, $\mu_x^{(2)} = 1.2$, determine $q_x^{(1)}$ and $q_x^{(2)}$.

3. Given a double decrement model where decrement 1 is EOY and $q_x^{(1)} = 0.1$, and for decrement 2, $\mu_x^{(2)} = 1.2$, determine $q_x^{(1)}$ and $q_x^{(2)}$.

4. For a four decrement model (whoa!!), decrement 1 is EOY and $q_x^{(1)} = 0.1$, decrement 2 is BOY and $q_x^{(2)} = 0.2$, decrement 3 is MOY and $q_x^{(3)} = 0.3$, and departures from decrement 4 occur continuously throughout the interval from time 0 to time 1. Given ${}_{0.5}p_x^{(4)} = 0.5$, determine $q_x^{(4)}$.