

Each problem is worth 10 points. Show all work for full credit, and use correct notation. Simplify answers completely. See other side for additional problems.

1. Given ${}_tq_x = \frac{t}{100-x}$, determine

(a) e_{50}

(b) μ_{80}

2. Given ${}_tp_x = \left(\frac{90-x-t}{90-x}\right)^2$, determine

(a) μ_{40}

(b) e_{50}^o

3. Given $l_x = 1000(0.90)^x$, determine ${}_{20}q_{30}$

4. Given $\mu_x = \begin{cases} .03 & \text{if } 30 < x < 60 \\ .06 & \text{if } x \geq 60 \end{cases}$, determine ${}_{40}p_{45}$

5. Use ILT assumptions to determine (round answer to the tenths place)

(a) $1000 \cdot ({}_{10}q_{25})$

(b) $1000 \cdot ({}_{5|10}q_{20})$