

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 ${}_tq_x = \frac{t}{90-x}$, determine

(a) μ_{50}

(b) μ_{60}

2. Given ${}_tp_x = \left(\frac{90-x-t}{90-x}\right)^{1/4}$, determine

(a) μ_{50}

(b) ${}^o e_{40}$

3. Given $l_x = 1000(0.95)^x$, determine ${}_{20}q_{30}$

4. Given $\mu_x = \begin{cases} .04 & \text{if } 30 < x < 60 \\ .05 & \text{if } x \geq 60 \end{cases}$, determine ${}_{45}p_{40}$

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

(a) $1000 \cdot ({}_{20}q_{30})$

(b) $1000 \cdot ({}_{5|15}q_{30})$