

MATH 3630 - Actuarial Mathematics I
 Fall 2016 - Valdez
 Quiz No. 2
 Monday, 19 September 2016

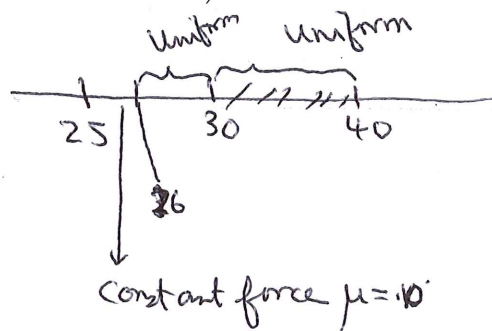
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Ostin, now age 25, has mortality that follows De Moivre's law with $\omega = 100$.

For the next one year, he will travel around the world so that he will now have a constant force of mortality of 0.10 (only for the coming year).

Calculate the probability that Ostin will die between ages 30 and 40. (Note: For 1 point, you must write the actuarial symbol for this probability before doing the calculations.)



$$\begin{aligned}
 {}_5|_{10}q_{25} &= {}_5p_{25} * {}_{10}q_{30} \\
 &= e^{-.10} * \left(1 - \frac{4}{74}\right) * \frac{10}{70} \\
 &= e^{-.10} * \frac{70}{74} * \frac{10}{70} \\
 &= e^{-.10} * \frac{10}{74} \\
 &= \underline{\underline{0.1222753}}
 \end{aligned}$$