

MTH6157 Survival Models

Week 2 exercises using R

1. Survival is modelled using the Exponential Model with a constant force of mortality of 0.00027
 - a. Calculate ${}_2p_{46}$
 - b. Calculate ${}_3q_{56}$

2. Mortality for a group of people in their 70's and 80's is to be estimated using Gompertz Law with the force of mortality given by

$$\mu_x = (0.0037)1.054^x$$

- a. Calculate μ_x for $x = 70, 71, \dots, 89$ using basic R functionality
- b. Plot a graph of the force of mortality under this model
- c. Hence calculate ${}_5p_x$ for $x = 70, 75$ and 80 in two different ways:
 - i. using basic R functionality
 - ii. using the `flexsurv` package functionality