

Samples                      Leslie matrix

1. A particular organism's population is modelled using a simple Leslie model with 4 life stages.  
The fertility of each life stage is: for group 1: 1, for group 2: 7, for group 3: 4, for group 4: 1.  
The survival rate from each life stage to the next is: for group 1: 0.4, for group 2: 0.8, for group 3: 0.4.  
The initial population is: group 1: 20, group 2: 2, group 3: 1, group 4: 1.  
Find the Leslie matrix  $L$  and initial population vector  $P_0$ , then estimate the population at times  $t = 1$  to  $t = 2$ .  
(Round your answers to 1 decimal place at each time step.)
  
2. A particular organism's population is modelled using a simple Leslie model with 2 life stages.  
The fertility of each life stage is: for group 1: 3, for group 2: 9.  
The survival rate from each life stage to the next is: for group 1: 0.5.  
The initial population is: group 1: 12, group 2: 2.  
Find the Leslie matrix  $L$  and initial population vector  $P_0$ , then estimate the population at times  $t = 1$  to  $t = 2$ .  
(Round your answers to 1 decimal place at each time step.)
  
3. A particular organism's population is modelled using a simple Leslie model with 4 life stages.  
The fertility of each life stage is: for group 1: 1, for group 2: 3, for group 3: 3, for group 4: 0.  
The survival rate from each life stage to the next is: for group 1: 0.3, for group 2: 0.9, for group 3: 0.3.  
The initial population is: group 1: 9, group 2: 2, group 3: 1, group 4: 1.  
Find the Leslie matrix  $L$  and initial population vector  $P_0$ , then estimate the population at times  $t = 1$  to  $t = 2$ .  
(Round your answers to 1 decimal place at each time step.)