Practice worksheet | Matrix models

Long-term behaviour and steady states

Name: _____ Date: _____

6 questions | 19 marks

1. For rows (0.8,0.3),(0.2,0.7), find steady proportions. [3 marks]

2. Use the same model for 350 members. Find steady counts. [3 marks]

3. For rows (0.9,0.4),(0.1,0.6), find steady proportions. [3 marks]

4. For the swap matrix, find steady proportions and explain the behaviour from (1,0). [3 marks]

5. Find steady proportions for rows (0.5,0.25,0),(0.5,0.5,0.5),(0,0.25,0.5). [3 marks]

6. A closed model has steady counts (80,120) out of 200. [4 marks]

(a) State the steady proportions. [1 mark]

(b) Predict steady counts if the total doubles and the transition rule is unchanged. [2 marks]

(c) Give one reason observed long-run counts might differ. [1 mark]