Practice worksheet | Matrix models

Transition matrices and state vectors

Name: _____ Date: _____

6 questions | 20 marks

1. Use rows (0.7,0.2),(0.3,0.8) to update (80,20). [3 marks]

2. Rows of a proposed closed transition matrix are (0.4,0.3),(0.5,0.7). Is it valid? [3 marks]

3. Find a, b so rows (0.75,a),(b,0.6) form a column-stochastic matrix. [3 marks]

4. A state vector is (120,80). What total must a closed transition preserve? [3 marks]

5. Each day 90% of North bikes stay North; 40% of South bikes move North. [5 marks]

(a) Write the North,South column-stochastic matrix. [2 marks]

(b) Predict tomorrow from (20,30). [3 marks]

6. A forecast is (34.6,15.4) for 50 bikes. Explain its meaning. [3 marks]