Practice worksheet | Matrix models

Repeated transitions

Name: _____ Date: _____

6 questions | 21 marks

1. Use rows (0.8,0.3),(0.2,0.7) and initial (100,0). Find x_2. [3 marks]

2. For the same matrix, begin at (0,100). Find x_1, x_2. [3 marks]

3. For that matrix, verify that (60,40) is unchanged after two periods. [3 marks]

4. A swap matrix has rows (0,1),(1,0). Start at (40,10). Find the states after 5 and 6 periods. [3 marks]

5. Use T: (0.8,0.3),(0.2,0.7), and U: (0.6,0.1),(0.4,0.9), with $x_0 = (100, 0)$. [6 marks]

(a) Calculate UTx_0. [3 marks]

(b) Calculate TUx_0 and explain the difference. [3 marks]

6. Name two checks after computing $T^{20}x_0$ for a closed 500-person model. [3 marks]