

Math 109-D04
Assignment 4

Deadline: Wed Apr 14, 2:30pm Pacific Time
Submit on D2L

Number of Questions: 4
Total Marks: 15

Show all your work for full marks.

You MAY use the course website (notes, videos etc) and your own notes

You may NOT copy from others (classmates, tutors, Google, Chegg etc)

Submit jpg or pdf files

Feel free to handwrite your solutions and take photos of your work

Covers Sections 7.1, 7.2, 8.2-8.4

1. [4 marks] If a person is currently a renter, there's an 80% probability that they will still be a renter next year. If a person is currently a homeowner, there's a 12% probability that they will be a renter next year. Find the stationary matrix.
2. [3 marks] An investment earns 3% annual interest, compounded monthly. How much should you invest today in order to have \$5,000 in 4 years?
3. [4 marks] You contribute \$200 to your savings account at the end of each month for the next 5 years. Your account earns 1.8% annual interest, compounded monthly.
 - a) How much money will you have after 5 years?
 - b) How much interest will you earn over the 5 years?
4. [4 marks] You want to withdraw \$200 from your savings account at the end of each month for the next 5 years. Your account earns 1.8% annual interest, compounded monthly.
 - a) How much money do you need to deposit today to fund these withdrawals?
 - b) How much interest will you earn over the 5 years?