

Use the pdf problem set posted to the website, as the numbering differs from that of the text.

Recitation (ungraded)

Attempt these before the recitation and check your solutions and solution process with TAs.

- (1) DMC Problem 6.2, 6.6, 6.8, 6.22, 6.29
- (2) DMC Problem 7.9, 7.10, 7.12(b), 7.16, 7.33

Problems (Submit solutions)

Show your work and explain your reasoning. Write in complete and grammatically sound sentences, and typeset your solution. See this $\text{\LaTeX}$ source file and the corresponding pdf for an example of an acceptable solution set.

- (1) [10] DMC Problem 6.14
- (2) [10] DMC Problem 6.15
- (3) [10] DMC Problem 6.21
- (4) [10] DMC Problem 6.40(a)
- (5) [10] DMC Problem 6.46
- (6) [10] DMC Problem 7.11
- (7) [10] DMC Problem 7.12(c)
- (8) [10] DMC Problem 7.14
- (9) [10] DMC Problem 7.15(a,b)
- (10) [10] DMC Problem 7.28. **Erratum:** in part (b), you should prove that $A_n = a^{\bullet(n+1)}(ba)^{\bullet n}$.

Bonus

Submit a correct solution to DMC Problem 7.30 by the due date of this HW, via Piazza as a private message to me (Alex Gittens).

- (i) Since we have around 200 students, and I will be grading these, only the first ten solutions to come in will be looked at.
- (ii) You'll get full credit for a well-written, correct proof, and zero credit and perhaps no substantive response otherwise (this depends on the number of students who submit a solution).
- (iii) You are to solve this without discussion with anyone, including TAs and me.

For the preceding reasons, do not attempt this problem unless you think it will be a rewarding/enriching experience in itself to wrestle with it. That said, a correct solution will net you a bonus 1% added to your final percentage in the course (future bonuses will not stack past the 2% mentioned in the syllabus).