

21-241 – Homework assignment week #5

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Reminder

Homework will be given on Fridays and due on the next Friday before 5pm, to me in class or in Andrew Zucker's mailbox in Wean Hall 6113. Late homework will never be accepted without a proper reason. In case of physical absence, electronic submissions by e-mail to both me and Andrew Zucker can be accepted. Please do not forget to write your name, andrew id and section and please use a staple if you have several sheets.

Reading

- Poole, Sec. 3.1 and 3.2.

Exercises (14 pts)

- (3 × 2 points) Prove the properties I left as an exercise in class about transpose (ie i), ii), iii)).
- (a) (2 points) Let $B = \begin{bmatrix} 0 & 1 & 1 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$. Compute B^2 and B^3 .
(b) (2 points) Let $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}$. Express A in terms of B and I_3 .
(c) (4 points) Deduce a formula for A^n .