

Homework 9

Due April 4th on paper at the beginning of class. Please let me know if you have a question or find a mistake. There is a hint on the second page.

- Exercises 2.3.17 and parts (1) and (2) of Exercise 3.2.5 from <https://www.math.purdue.edu/~kdatchev/442/itint.pdf>.
- Let A be a matrix with entries $(a_{ij})_{i,j=1}^n$ and define $p: \mathbb{R} \rightarrow \mathbb{R}$ by $p(t) = \det(I + tA)$. Find $p'(0)$.

Hint: Write the columns of $I + tA$ as $(e_1 + tv_1, \dots, e_n + tv_n)$ and expand $\det(I + tA)$ using multilinearity of $\det$.