

# Homework 6 – due 10/24/03

Math 340

Problems for practice (highly recommended, but not to be handed in):

2.3.1, 2.3.3, 2.3.8, 2.3.11

4.8.2, 4.8.7

Do the following problem before the next exam:

$$\text{Let } f_1\left(\begin{bmatrix} x \\ y \\ z \end{bmatrix}\right) = \begin{bmatrix} zy \\ x^x \end{bmatrix}, f_2(t) = \begin{bmatrix} t \\ \cos(e^t) \\ e^{t^2} \end{bmatrix}, f_3\left(\begin{bmatrix} u \\ v \\ w \end{bmatrix}\right) = uv + uv + vw, f_4\left(\begin{bmatrix} r \\ s \end{bmatrix}\right) = \begin{bmatrix} r + s^2 \\ r^2 + s \\ \tan(s) \end{bmatrix}, \text{ and } f_5\left(\begin{bmatrix} h \\ k \\ j \end{bmatrix}\right) = \begin{bmatrix} jh \\ hjk \end{bmatrix}. \text{ Compute } D(f_1 \circ f_2 \circ f_3 \circ f_4 \circ f_5)\left(\begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}\right).$$

Problems to be handed in:

1. Problem 2.3.2 (f,g)
2. Problems 2.3.5 and 2.3.6
3. Problem 4.8.1
4. Problem 4.8.10
5. Write each matrix in 2.3.2 (f,g) as a product of elementary matrices,