

## MA 530 first midterm review problems

Version as of February 5th.

The first midterm will be in class on Monday February 13th. Most of the exam will be closely based on problems, or on parts of problems, from the list below. Justify your answers. Please let me know if you have a question or find a mistake.

- For every complex  $z$  and  $h$ , define  $f_h(z) = (z + h)^3$ . Find  $g(z)$  such that, for any  $R > 0$ ,  $h^{-1}(f_h(z) - f_0(z)) \rightarrow g(z)$  as  $h \rightarrow 0$ , uniformly on  $\{z \in \mathbb{C}: |z| \leq R\}$ .
- Taylor Section 1.5 # 17.
- Taylor Section 2.1 # 3.
- Taylor Section 2.2 # 2, # 9, # 10, #14.
- Taylor Section 2.3 # 1.
- Taylor Section 2.4 # 2.
- Taylor Section 2.6 # 4.
- Taylor Section 2.7 # 1.