

M126

X-hr

MATLAB exploration.

1/11/12  
Barnett

A) Write a code to plot  $e^x$  on  $[-1, 1]$

[Hint: create  $x$  array & work with that. Don't use loops].

B) Plot on  $[-1, 1]$  the error of its Taylor series approximation (using 10 terms)  
[Hint: series  $e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$ . You will want to loop over  $n$ ].

C) Investigate convergence rate of  $N$ -term Taylor series vs.  $N$ , at the single point  $x = 1$ . Make a convergence plot (err vs  $N$ ).  
Hint: you will loop over  $N$ , but can use polyval & factorial, the later taking a vector argument. to avoid loop over  $n$ ].