

## Calculus II (Math 242) – Homework

Recall that

$$\tanh x = \frac{\sinh x}{\cosh x}.$$

1. Find the 11th Taylor polynomial of  $\tanh x$ .
2. How accurately does the 11th Taylor polynomial describe  $\tanh x$  on  $[-.5, .5]$ ?
3. How many terms do you need to make sure that the error is less than  $10^{-6}$  for all  $x$  in the interval  $[-.5, .5]$ ?
4. Confirm your computations graphically. Use Wxmaxima or DfW to produce supporting evidence.

Repeat above program with  $f(x) = \operatorname{sech} x$ .