

Home work 1: Due Thurs. Jan. 28, 2016

Math 2335 Spring 2016

Name: _____

(1) Consider $f(x) = \ln x$. Find the Taylor polynomials of orders 2 and 3 (i.e. $p_2(x)$ and $p_3(x)$) for f centered at $a = 1$. Use p_2 to approximate $\ln(1.1)$. Use p_3 to get a better approximation to $\ln(1.1)$.

(2) Use formula (1.17) on page 13 of Atkinson and Han to express the third degree Taylor polynomial and remainder $p_3(x) + R_3(x)$ for

$$f(x) = \sqrt{1+x}.$$

(3) Bound the error $R_3(x)$ from problem (2) if $0 \leq x \leq \frac{1}{2}$.