

SECTION 6.3: TAYLOR AND MACLAURIN SERIES (DAY 3)

(1) Find the Maclaurin Series for $f(x) = e^x$. So, the Taylor Series with $a = 0$.

(2) Find $p_5(x)$, the 5th Taylor polynomial for $f(x) = e^x$.

(3) Use $p_5(x)$ to estimate the value of e^2 and determine the error.

(4) **Taylor's Remainder Theorem**

(5) (HW 6.3 # 131)

(a) Why have you never been asked to evaluate $\int_0^1 e^{-x^2} dx$?

(b) **Use the Maclaurin Series for $f(x) = e^x$ to find the Maclaurin Series for $g(x) = e^{-x^2}$.**

(c) Use $p_6(x)$, the 6th Maclaurin Series for $g(x) = e^{-x^2}$ to estimate $\int_0^1 e^{-x^2} dx$.

(d) How good is your estimation?