

MATH2010E HOMEWORK 4

Please do the following problems due to June 11, 5 pm (**Next Monday, Not Wednesday**).

Do the following problems are from "Thomas' Calculus."

Exercises 14.5: 30.

Exercises 14.8: 33, 37, 43.

Exercises 14.9: 5, 8.

7. Let $f = e^{2x} \sin(3y)$ be defined on \mathbb{R}^2 .

- a. Find the Taylor's polynomial $P_3(x, y)$ for f centred at $(0, 0)$.
- b. Find the m such that $|f(x, y) - P_m(x, y)| \leq \frac{1}{100}$ for any (x, y) satisfying $x^2 + y^2 < 4$. Explain your reason.