

Due Sunday, April 12, 2026 in Gradescope by 11:59 pm

Instructions:

- This is an Open Notes Quiz. You can use materials, homeworks problems, lecture notes, etc. that you manually worked on.
- This is **NOT** an Open Internet Quiz. You can only access our Main Course Webpage.
- You are not allowed to work on or discuss these problems with other students, professor, Math Fellow TA or simply put anyone.
- You can ask a few small, clarifying, questions in Office Hours, but the problems will not be solved for you.
- The main goal is to make a thoughtful and detailed presentation for the solutions. Submit a clear final draft. No mess please.
- Please submit your work in Gradescope in the **OPTIONAL** Quiz 6 entry.

1. [10 points each] Compute each of the following Integrals. Justify.

(a)
$$\int \frac{(1 + e^{3x})^2}{e^{3x}} dx$$

(b)
$$\int \frac{e^{3x}}{(1 + e^{3x})^2} dx$$

(c)
$$\int \left(e^{3x} + \frac{1}{e^{7x}} \right) \left(e^x - \frac{1}{e^{5x}} \right) dx$$

(d)
$$\int \frac{1}{e^{4x} \sqrt{5 - e^{-4x}}} dx$$

2. [10 points] Find the Local Maximum and Minimum **Value(s)** for $f(x) = x^2 e^x$.**3.** [10 points] Let $f(x) = \frac{e^{8x}}{e^{5x}} - e^{\sin(6x)} - \cos(1 - e^{8x})$. Compute $f'(0)$.**DO NOT SPEAK TO ANYONE ELSE ABOUT THIS QUIZ**