ACMAT161 Summer 2024
Professor Manguba-Glover
Homework 10   Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

1. Differentiate $f(x) = e^5$

2. Differentiate $h(t) = \sqrt[4]{t} - 4e^t$

3. Differentiate $f(x) = \frac{x^2 e^x}{x^2 + e^x}$

4. Differentiate $f(x) = x \cos x + 2 \tan x$

5. Differentiate $y = \frac{\sin t}{1 + \tan t}$

6. Differentiate $y = 2^x \ln x + 5 \log_2 x$

7. Differentiate $f(x) = x \cos x \sin x$ (you'll have to use product rule twice)

8. Find the first and second derivatives of $f(x) = 3^x + x^3$

9. Find an equation of the tangent line to $y = \frac{1+x}{1+e^x}$ at $\left(0, \frac{1}{2}\right)$

10. Find an equation of the tangent line to $y = e^x \cos x$ at $(0, 1)$