Math 1271 Section 30 Recitation Quiz 6

Grader: Cihan Bahran Name: _____

Time limit: 20 minutes TA: _____

NO CALCULATORS. NO HANDHELD DEVICES. NO BOOKS OR REFERENCE MATERIALS OF ANY KIND.

1. (35 points) Find the equation of the tangent line to the graph of the equation

$$x^2y^3 + e^{2xy} = \frac{x}{y} + y^5$$

at the point $(0, 1)$.

2. (20 points) Let $f : \mathbb{R} \to \mathbb{R}$ be a differentiable and invertible function with the inverse $g : \mathbb{R} \to \mathbb{R}$. If $f(3) = 5$ and $f'(3) = \frac{2}{3}$, then what is $g'(5)$?

A) $\frac{1}{3}$

B) $\frac{2}{3}$

C) $\frac{3}{2}$

D) 3

E) Can't be determined with the given information.

SEE OTHER SIDE FOR MORE PROBLEMS

3. (35 points) Find the derivative of the function

$$f(x) = \arctan\left(\frac{e^{5x}}{\sqrt{1+x^2}}\right).$$

You don't need to simplify the expression you get after differentiating.

4. (10 points) Suppose $f : \mathbb{R} \to \mathbb{R}$ is a differentiable function whose **derivative** is

$$f'(x) = \frac{6-2x}{x^2}.$$

Is the following statement true or false?

$x = 3$ is a local minimum of f.

True False

SEE OTHER SIDE FOR MORE PROBLEMS