Calculus II	Name:
Study Guide 9	Class:
Due Date:	Score:

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. (3 points) Use logarithmic differentiation to find the first derivative of $y = \frac{(x^2 + 1)^4}{\sqrt[3]{3x - 1}}$.

2. (4 points) Find the first derivative of $xe^y = y - 1$.

2. _____

1. _____

3. (4 points) Find the first derivative of $y = (\cos x)^x$.

3. _____

4. (4 points) Find the first derivative of $y = x + \tan^{-1} y$.

5. (4 points) Find $\int_0^1 x e^{-2x^2} dt$.

6. (3 points) Find the average value of $f(x) = \frac{1}{x}$ on the interval [1, e].

7. (4 points) Find the area of the region bounded by the curves $y = e^x$, $y = e^{-x}$, $x = -\ln 2$, and $x = \ln 2$. Drawing required.

7. _____

4. _____

5. _____

6. _____

8. (4 points) Find the volume of the solid obtained by rotating about the y- axis the region bounded $y = \frac{1}{1+x^4}$ and x-axis from x = 0 to x = 1. Drawing required.

8._____

9._____

9. (4 points) If $f(x) = \tan^{-1} x + \ln x$, find $(f^{-1})'(\pi/4)$.

10. (4 points) If $f(x) = x^2 + x + e^x$, find $(f^{-1})'(1)$.

10. _____

11. (4 points) Evaluate $\int \frac{x}{\sqrt{1-x^4}} dx$.

11. _____

12. (4 points) Evaluate $\int \tan x \ln(\cos x) dx$.

12. _____

13. (4 points) Evaluate $\int \left(\frac{1-x}{x}\right)^2 dx$.

13. ____