

Part I

No Part I this time.

Part II: Problems (due by 12:30 PM Tuesday, December 16)

Revisions are also due by 12:30 PM Tuesday, December 16.

1. Find the derivative of the given function.

(a) $f(x) = \ln((\ln x)^2)$

(b) $f(x) = \ln(\ln(\ln(\ln x)))$

(c) $f(x) = \left(\frac{\ln x}{x}\right)^2$

(d) $f(x) = \ln(\cos x - 4x)$

(e) $f(x) = \ln((x-3)(x^2+6x-4))$

(f) $f(x) = e^{\pi x^2 - 3}$

(g) $f(x) = 3e^x \tan x$

(h) $f(x) = \frac{e^{x^2}}{e^x + 1}$

2. Evaluate the following integrals.

(a) $\int \frac{2x}{x^2 - 25} dx$

(b) $\int \frac{3 \sec^2 x}{6 + 3 \tan x} dx$

(c) $\int \frac{\sec x}{\sqrt{\sec x + \tan x}} dx$

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

(e) $\int_{\ln \frac{\pi}{6}}^{\ln \frac{\pi}{2}} 2e^x \cos e^x dx$

(f) $\int_0^{\sqrt{\ln \pi}} 2xe^{x^2} \cos(e^{x^2}) dx$

Self Evaluation #3 (due by 12:30 PM Tuesday, December 16)

Make an appointment for a meeting with me on Monday or Tuesday of finals week.

Think about your learning and growth in this course and write about it in response to these questions plus anything else you want to share:

- How have you grown in your mathematical thinking this semester?
- In what, if any, ways have you changed your practices as a student toward learning mathematics?
- In what, if any, ways has your understanding of what mathematics is changed this semester?
- What things in calculus do you think you deepened your understanding of this semester? What contributed to that deeper understanding?
- What things in calculus do you wish we had spent more time on this semester?