Name: _____

- There are 12 points possible on this proficiency, one point per problem. **No partial credit will be given.**

- You have 1 hour to complete this proficiency.

- No aids (book, calculator, etc.) are permitted.

- You do **not** need to simplify your expressions.

- Correct parenthesization is required.

- Do not put a "$+C$" where it does not belong and put a "$+C$" in the correct place at least one time.

1. [12 points] Compute the integrals of the following functions.

a. $\displaystyle\int_{0}^{\pi/2} e^x + \cos(x)\,dx$

b. $\displaystyle\int_{1}^{2} \frac{\ln(x)}{2x}\,dx$

c. $\displaystyle\int (5^{2/3} + e^{-x} + e^2 x^2)\,dx$

d. $\displaystyle\int \frac{3}{\sqrt{1-x^2}}\,dx$

e. $\displaystyle\int \sec^2(8\theta)\,d\theta$

f. $\displaystyle\int x\sqrt{x+16}\,dx$

g. $\displaystyle \int 4(\sin(2x))^5 \cos(2x)\,dx$

h. $\displaystyle \int \frac{4x^3 - 6}{x}\,dx$

i. $\displaystyle \int \frac{4t}{t^2 + 3}\,dt$

j. $\displaystyle \int \sec(x)\tan(x)e^{\sec(x)}\,dx$

k. $\displaystyle \int x^{-3}(2x+1)\,dx$

l. $\displaystyle \int \pi^2\,dx$