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. $\displaystyle\int_0^1 5e^x + \sin(x)\,dx$

b. $\displaystyle\int_0^1 2x\sqrt{x^2+5}\,dx$

c. $\displaystyle\int (6+\sec^2(\theta))\,d\theta$

d. $\displaystyle\int \frac{2-x+x^4}{x^2}\,dx$

e. $\displaystyle\int \frac{1}{1+4x^2}\,dx$

f. $\displaystyle\int (x+xe^{5x^2})\,dx$

g. $\displaystyle\int \frac{1+\cos(t)}{\sin(t)+t}\,dt$

h. $\displaystyle\int \frac{x(x^{1.2}+1)}{8}\,dx$

i. $\displaystyle\int x(x-5)^9\,dx$

j. $\displaystyle\int \sec\left(\frac{x}{\pi}\right)\tan\left(\frac{x}{\pi}\right)\,dx$

k. $\displaystyle\int \frac{\ln(x)}{x}\,dx$

l. $\displaystyle\int \left(\frac{5}{x}+\frac{\cos(x)}{5}\right)\,dx$