

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. $\int_0^1 4e^x + \sin(x) dx$

b. $\int_0^1 2x\sqrt{x^2 + 3} dx$

c. $\int (5 + \sec^2(\theta)) d\theta$

d. $\int \frac{1}{1+9x^2} dx$

e. $\int (x + xe^{2x^2}) dx$

f. $\int \frac{7-x+x^4}{x^2} dx$

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

h. $\int \frac{x(x^{1.3} + 1)}{6} dx$

i. $\int \frac{1 + \cos(t)}{\sin(t) + t} dt$

j. $\int \frac{\ln(x)}{x} dx$

k. $\int x(x-4)^9 dx$

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