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. $\displaystyle\int_{-1}^{1} (2x+8)\,dx$

b. $\displaystyle\int_{0}^{1} x^2\sqrt{3x^3+1}\,dx$

c. $\displaystyle\int (\theta+\cos(3\theta))\,d\theta$

d. $\int (n + ke^x + \sec^2(x))\, dx$

e. $\int 7x^2 e^{x^3}\, dx$

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

g. $\displaystyle\int \left(\frac{\sqrt{3}}{x} + \frac{3}{x^3} + \frac{\sin(x)}{3} \right) dx$

h. $\displaystyle\int \frac{x}{5-3x^2}\, dx$

i. $\displaystyle\int e^x (1+e^x)^2\, dx$

j. $\int (\sec(t)\tan(t)+1)\,dt$

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

l. $\int 2x^3(1+x^2)^5\,dx$