

Name: _____

- There are 12 points possible on this proficiency: one point per problem with no partial credit.
- You have 30 minutes to complete this proficiency.
- No aids (book, calculator, etc.) are permitted.
- You do **not** need to simplify your expressions.
- For at least one problem you must indicate correct use of a constant of integration.
- Circle your final answer.

1. [12 points] Compute the following definite/indefinite integrals.

a. $\int_1^9 \frac{x+1}{\sqrt{x}} dx$

b. $\int_0^{1/2} (2 - \sin(\pi x)) dx$

c. $\int (x+1)(2x+3) dx$

d. $\int \frac{e^x}{(5+e^x)^4} dx$

e. $\int \frac{1 - \sin(x)}{x + \cos(x)} dx$

f. $\int xe^{2x^2} dx$

g. $\int x(x+1)^{12} dx$

h. $\int \sec(1-3x)\tan(1-3x) dx$

i. $\int \frac{8}{1+x^2} dx$

j. $\int \sqrt{3} \sec^2(x) dx$

k. $\int (\sqrt[3]{x^4} + \sqrt[3]{5}) dx$

l. $\int \left(\frac{1}{x} + \frac{\ln(x)}{x} \right) dx$