

Name: _____

Instructor (circle): Maxwell Jurkowski Sus

- There are 12 points possible on this proficiency: one point per problem with no partial credit.
- You have 60 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. $\int (\sec(x) \tan(x) - 3) \, dx$

b. $\int \frac{x^2 + \sqrt{x} + 2}{\sqrt{x}} \, dx$

c. $\int_1^2 (x^3 + e^3) \, dx$

d. $\int \sec^2(\pi x) dx$

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

f. $\int (x^2 + 1)(x - 3) dx$

g. $\int \frac{3}{\sqrt{1-x^2}} + e^x \, dx$

h. $\int x\sqrt{2+x} \, dx$

i. $\int \frac{\cos(x)}{\sin^2(x)} \, dx$

j. $\int \frac{\cos(1/x)}{x^2} dx$

k. $\int \frac{x^2}{4x^3 + 6} dx$

l. $\int \sin(x)e^{(2\cos(x))} dx$