

Name: \_\_\_\_\_ / 12

- 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.  $\int_1^4 \left( \frac{1}{x} - \sqrt{x} \right) dx$

b.  $\int \left( 7^{\frac{1}{3}} + e^{5x} - \pi x^2 \right) dx$

c.  $\int \frac{1}{x \ln(x)} dx$

d.  $\int (x-2)(x-3) dx$

e.  $\int \sec^2(x) e^{\tan(x)} dx$

f.  $\int \left( \frac{8x}{1-x^2} + \cos(x) \right) dx$

g.  $\int x\sqrt{x-9} dx$

h.  $\int \cos(x)(\sin(x) - 3)^5 dx$

i.  $\int \sec^2\left(\frac{\pi}{2}t\right) dt$

j.  $\int \frac{6}{\sqrt{1-s^2}} ds$

k.  $\int e^{-8t+5} dt$

l.  $\int \frac{2x^3 - 5}{x} dx$