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Instructor: **Bueler** I **Jurkowski** I **Maxwell**

- 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. $\displaystyle \int 7\cos(x) + \pi^6 - \sqrt{x}\, dx$

   b. $\displaystyle \int \sec^2(7x)\, dx$

   c. $\displaystyle \int_0^5 t^3(1-t)\, dt$

d. $\displaystyle \int \frac{x^2}{\sqrt{x^3+5}}\,dx$

e. $\displaystyle \int v\sqrt{v-8}\,dv$

f. $\displaystyle \int \frac{\sin(x)}{\cos(x)}\,dx$

g. $\displaystyle\int \frac{6}{\sqrt{1-x^2}}\, dx$

h. $\displaystyle\int e^t - t^3 \cos(t^4)\, dt$

i. $\displaystyle\int \frac{(4+\ln(x))^3}{x}\, dx$

j. $\displaystyle \int \frac{x^3+5}{x}\, dx$

k. $\displaystyle \int e^{\pi x}\, dx$

l. $\displaystyle \int \sec^2(x)\tan^5(x)\, dx$