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. $\displaystyle \int x^{\frac{3}{7}} - \frac{1}{x} + e^2 \, dx$

   b. $\displaystyle \int_0^2 \sin x + e^x \, dx$

   c. $\displaystyle \int \cos(4\pi x) \, dx$

d. $\int \dfrac{3}{\sqrt{1-x^2}}\,dx$

e. $\int \dfrac{3x}{1-x^2}\,dx$

f. $\int \dfrac{1-x^2}{3x}\,dx$

g. $\displaystyle \int e^x + \frac{\ln(x)}{x}\, dx$

h. $\displaystyle \int (1+\sec(x))^2 \sec(x)\tan(x)\, dx$

i. $\displaystyle \int x^{\frac{2}{3}}(x-1)\, dx$

j. $\int x\sqrt{x-5}\,dx$

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

l. $\int \dfrac{1}{(3x-2)^3}\,dx$