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. $\displaystyle\int x^{\frac{2}{5}} + \frac{1}{x} + \sqrt{2}\ dx$

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

c. $\displaystyle\int \sin(3\pi x)\ dx$

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

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

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

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

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

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

j. $\displaystyle\int x\sqrt{x-3}\,dx$

k. $\displaystyle\int x^2\sin(x^3)\,dx$

l. $\displaystyle\int \frac{1}{(2x-3)^4}\,dx$