Name: _____   _____ / 12

- There are 12 points possible on this proficiency: **One point per problem. No partial credit.**

- A passing score is 10/12.

- You have 30 minutes to complete this proficiency.

- No aids (book, calculator, etc.) are permitted.

- You do **not** need to simplify your expressions.

- Be sure to include constants of integration when appropriate.

- Circle your final answer.

Compute the following integrals.

1. $\displaystyle\int_1^2 \frac{4 - 3x^4 + x^8}{x^5}\,dx$

2. $\displaystyle\int \left(\cos(3x) - e^{-x}\right)\,dx$

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

4. $\int \cos^2(2x) \sin(2x)\,dx$

5. $\int \dfrac{x}{\sqrt{4-x}}\,dx$

6. $\int \dfrac{x}{1-x^2} + \dfrac{2}{1+x^2}\,dx$

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

8. $\int (3x+3)(x+1)\,dx$

9. $\int x^2 \sin(1-x^3)\,dx$

10. $\displaystyle\int \sqrt{x}(x^2 + \frac{2}{x^2})\, dx$

11. $\displaystyle\int \left(\frac{e^x + x^3}{\sqrt{3}}\right) dx$

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