

Please show **all** your work! Answers without supporting work will not be given credit.

Name: \_\_\_\_\_

1. **Integration** Using one or more of the methods discussed, solve the following integrals:

- $\int \sin(x^2)x^3 dx$

- $\int \frac{x^5 + 1}{x(x + 2)} dx$

- $\int \sin(x) \cos(x) dx$

- $\int \frac{\sec^2(x)}{\tan^2(x) - \tan(x)} dx$

- $\int \frac{e^x}{(e^x - 1)(e^x + 3)} dx$

- $\int (\ln(x))^3 dx$

- $\int \sqrt{4 - \sqrt{x}} dx$