

## PART I.

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

You may not use a computer to do this part of the exam!

1. (\_\_\_\_/10 points) Given  $f(x)$ , compute the derivative  $f'(x)$ .

(a)  $f(x) = x^3e^x + \ln(x^4) + 5x - 2$

(b)  $f(x) = e^{-x^2} + \ln(x^2 + 1)$

2. (\_\_\_\_/10 points) Compute the following indefinite integrals.

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

(b)  $\int e^{-2x} dx$

(c)  $\int (x^2 - 2x + 5)^2(x - 1) dx$