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) $f(x) = x^3 \ln(x) + \dfrac{1}{\sqrt{x}} + 7x - 15$

(b) $f(x) = \ln(e^x + 1) + (x^2 + 5)^{100}$

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

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

(b) $\displaystyle \int e^{4x}\, dx$

(c) $\displaystyle \int \frac{3x^2 + 2}{x^3 + 2x - 5}\, dx$