Part 1 MCQ (30%)

Directions: Circle the letter that corresponds to the correct answer. There is only one correct answer for each question. You do not need to show your work.

(*6pts*)**Problem 1**

$$\int x^3 \ln x \, dx$$

is equal to:

(a) $\frac{1}{3}x^3 \ln x - \frac{1}{9}x^3 + C$

(b) $\ln x - \frac{1}{16}x^4 + C$

(c) $\frac{1}{4}x^4 \ln x - \frac{1}{16}x^4 + C$

(d) $x^3 \ln x - \frac{1}{9}x^4 + C$

(e) $\frac{1}{4}x^4 \ln x - x^3 + C$

(*6pts*)**Problem 2**

(*6pts*)**Problem 3**

(*6pts*)**Problem 4**

1

$(6pts)$**Problem 5**

Part 2 Written Questions (70%)

$(10pts)$**Problem 1**

$(10pts)$**Problem 2**

$(10pts)$**Problem 3**

$(10pts)$**Problem 4**
$(10pts)$**Problem 5**

$(10pts)$**Problem 6**

$(10pts)$**Problem 7**