Group Exam 5

Name: _____

Math 142

Name of group member: _____

Professor Johnson

Name of group member: _____

Fill in the blank **Comparison Theorem for Integrals**:

Suppose that f and g are continuous functions with $0 \leq f(x) \leq g(x)$ for $x \geq a$.

(i) If $\int_a^\infty g(x)\ dx$ is convergent, then _____.

(ii) If $\int_a^\infty g(x)\ dx$ is divergent, then _____.

(iii) If $\int_a^\infty f(x)\ dx$ is divergent, then _____.

(iv) If $\int_a^\infty f(x)\ dx$ is convergent, then _____.

Problem 1: Determine whether the integral is convergent or divergent.

$$\int_1^\infty \frac{1}{x + e^{2x}}\ dx$$

Signature line: _____ _____

Group Exam 5

Name: _____

Math 142

Name of group member: _____

Professor Johnson

Name of group member: _____

Problem 2: Evaluate the integral.

$$\int_1^\infty \frac{x^2}{4+x^6}dx.$$

Signature line: _____ _____

Group Exam 5

Name: _____

Math 142

Name of group member: _____

Professor Johnson

Name of group member: _____

Problem 3: Evaluate the integral.

$$\int \sin(\sqrt[3]{x})\ dx$$