MATH 105 Quiz # 3 Monday Feb 22, 2016 **FAMILY NAME:**
(5 questions, two sides, 15 minutes) **STUDENT NUMBER:**

Work must be shown for full marks.

1. Express as a definite integral $\lim_{n\to\infty} \sum_{i=1}^{n} \left(3 + \sqrt{4 + \frac{2i}{n}}\right)^2 \times \frac{2}{n}$

2. Compute $\frac{d}{dx} \int_2^x e^{t^2} dt$

3. Compute $\frac{d}{dx} \int_2^{x^2} e^{t^2} dt$

Evaluate the following indefinite integrals

$$\int \frac{1}{x \ln(x)} \quad dx$$

$$\int \frac{2x+4}{\sqrt{x^2+4x}} \quad dx$$

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2. Compute $\frac{d}{dx} \int_2^x \sin(t^2) dt$

3. Compute $\frac{d}{dx} \int_2^{x^2} \sin(t^2) dt$

Evaluate the following indefinite integrals

$$\int \frac{1}{x \ln(x)} \quad dx$$

$$\int \frac{2x - 6}{\sqrt{x^2 - 6x}} \quad dx$$