Name ____________________________________________

• No calculators allowed.
• Show sufficient work to justify each answer.
• You have 15 minutes for this quiz.

1. (1 point) Given that \( \int_5^8 e^x \sin^2 x \ln x \, dx = 3698.88 \), what is the value of \( \int_5^8 e^v \sin^2 v \ln v \, dv \)?

2. (1 point) If \( f(6) = 13 \), \( f' \) is continuous and \( \int_2^6 f'(x) \, dx = 5 \), what is \( f(2) \)?

3. (2 points) Fill in the missing information to show that the given definite integral can be expressed as the limit of a Riemann sum. The only variables appearing in your limit should be \( n \) and \( k \). **You do not need to evaluate this limit.**

\[
\int_{-1}^{4} \frac{\ln x}{x^3 + 7} \, dx = \lim_{n \to \infty} \sum_{k=1}^{n} \left[ 
\right]
\]
4. (3 points) Evaluate the following indefinite integral.

\[ \int \tan x \cos x \, dx \]

5. (3 points) At 9:00 AM, Sue starts collecting donations for her charity. She collects money at a rate of \(9t^2 - 2t + 1\) dollars per hour, where \(t\) denotes the number of hours since 9:00 AM. What is the total amount of money that Sue collects between 10:00 AM and 12:00 AM? Simplify your answer as much as possible without the use of a calculator.