

Name _____

- You have 15 minutes
- No calculators
- Show sufficient work

1. (3 points) Evaluate the following indefinite integral.

$$\int (1 + \sqrt[3]{x})^2 dx$$

2. (3 points) Evaluate and simplify the following definite integral.

$$\int_4^{32} \frac{1}{3x} dx$$

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.

$$\int_2^5 \sin(x^2) dx = \lim_{n \rightarrow \infty} \sum_{k=1}^n \left[\quad \right]$$

4. (2 points) Evaluate the following limit. Be sure to use proper notation throughout your evaluation of this limit.

$$\lim_{n \rightarrow \infty} \sum_{k=1}^n \left(\frac{50}{n^3} + \frac{10k}{n^2} + \frac{3}{n} \right)$$