

Name: _____

Mark: _____

Mini-math Div 3/4: Wednesday, February 10, 2021 (15 minutes)

1. (2 points) Choose the integral that is the limit of the Riemann Sum: $\lim_{n \rightarrow \infty} \sum_{k=1}^n \left(1 + \frac{4k}{n}\right)^2 \cdot \frac{4}{n}$

A. $\int_1^5 (1+x)^2 dx$ B. $\int_1^5 x^2 dx$ C. $\int_0^4 (1+4x)^2 dx$ D. $\int_0^4 x^2 dx$

2. (2 points) Choose the integral that is the limit of the Riemann Sum: $\lim_{n \rightarrow \infty} \sum_{k=1}^n \left(\sqrt{2 + \frac{k}{n}}\right) \cdot \left(\frac{2}{n}\right)$

A. $\int_0^2 \sqrt{2 + \frac{x}{2}} dx$ B. $\int_0^2 \sqrt{2+x} dx$ C. $\int_0^2 \sqrt{2+2x} dx$ D. $\int_0^2 \sqrt{1+x} dx$

3. (2 points) Choose the Riemann Sum whose limit is the integral: $\int_0^3 \sin(x^3 - 1) dx$

A. $\lim_{n \rightarrow \infty} \sum_{k=1}^n \sin \left(\left(\frac{k}{n} \right)^3 - 1 \right) \cdot \left(\frac{1}{n} \right)$

B. $\lim_{n \rightarrow \infty} \sum_{k=1}^n \sin \left(\left(\frac{k}{n} \right)^3 - 1 \right) \cdot \left(\frac{3}{n} \right)$

C. $\lim_{n \rightarrow \infty} \sum_{k=1}^n \sin \left(\left(\frac{3k}{n} \right)^3 - 1 \right) \cdot \left(\frac{1}{n} \right)$

D. $\lim_{n \rightarrow \infty} \sum_{k=1}^n \sin \left(\left(\frac{3k}{n} \right)^3 - 1 \right) \cdot \left(\frac{3}{n} \right)$