

Name: _____

Quiz # 10

Total of 25 points.

1. (7 pts) State the definition of the definite integral. In particular, complete the expression on the right side of the equality *and* explain the quantities you use in your definition:

$$\int_a^b f(x) dx = \lim \sum$$

2. (8 pts) Given that

$$\sum_{i=1}^n i^3 = \left[\frac{n(n+1)}{2} \right]^2,$$

use the definition of the definite integral, and right endpoints in particular, to compute

$$\int_0^1 x^3 dx =$$

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3. (5 pts) Use the Fundamental Theorem of Calculus to compute the same integral as in question **2**:

$$\int_0^1 x^3 dx =$$

4. (5 pts) Compute

$$\frac{d}{dx} \left(\int_7^x e^t \sin(t^2) dt \right) =$$