

Instructions: Show Your Work!

1. (6 pts) Let $f(x) = x^2$ be defined on the interval $[0, 2]$.
- (a) Using left endpoints, express the definite integral of f from $x = 0$ to $x = 2$ as a limit.
 - (b) Evaluate the limit in (a).

2. (4 pts) If

$$f(x) = \int_2^{x^3+3x} (t^3 + 1)^{15} dt,$$

find $f'(0)$.

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2. (4 pts) If

$$f(x) = \int_2^{x^4 - 5x} (t^3 + 1)^{27} dt,$$

find $f'(0)$.