

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise.

- (1) **Set up (but do not evaluate)** the calculation needed for using midpoints to approximate the area above the x -axis and below $y = x^3 + 4$ from $x = 0$ to $x = 12$ using 3 rectangles.

(2) Find $\frac{d}{dx} \int_0^{x^2} t^{1/3} dt$