MATH 1525 CALCULUS I Quiz 10 Name:
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Problem 1. Estimate the area under the graph of $f(x) = 6x - x^2$ between $a = 0$ and $b = 6$ as follows:

(a) Divide $[0, 6]$ into three equally sized intervals. Let Δx denote the length of one of these intervals.

(b) Find the midpoint of each interval. Label these midpoints c_1, c_2, and c_3.

(c) Compute $\sum_{i=1}^{3} f(c_i)\Delta x$.

Problem 2. Solve the initial value problem $y'(x) = 6x - x^2$ and $y(0) = 0$. Compute $y(6)$.

Problem 3 (Extra Credit). Compute the indefinite integral $\int 5x^4 \tan^2(x^5)\, dx$.