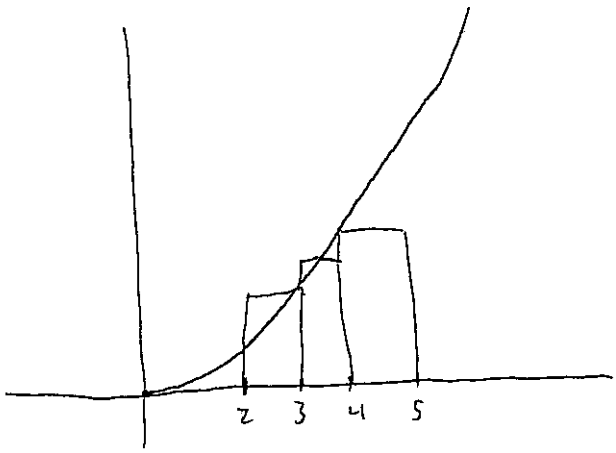
Math 132 Quiz
12 Noon - 1 PM

1. Approximate the area A under the graph of $y = 2x + 6x^2$ and over the interval $[2, 5]$ by using a Riemann sum with $N = 3$ subintervals. For the choice of points, use the right endpoint for the subinterval on the left, the midpoint for the middle subinterval, and the left endpoint for the subinterval on the right.



$$A \approx (1) \cdot \left(f(3) + f\left(\tfrac{7}{2}\right) + f(4) \right)$$
$$= (6 + 54) + \left(7 + 6 \cdot \tfrac{49}{4}\right) + (8 + 96)$$
$$= 60 + 80.5 + 104$$
$$= 244.5$$

2. Calculate the area A of the preceding problem *exactly*.

$$\int_2^5 2x + 6x^2 \, dx = x^2 + 2x^3 \Big|_2^5 = (25 + 250) - (4 + 16) = 275 - 20 = 255$$