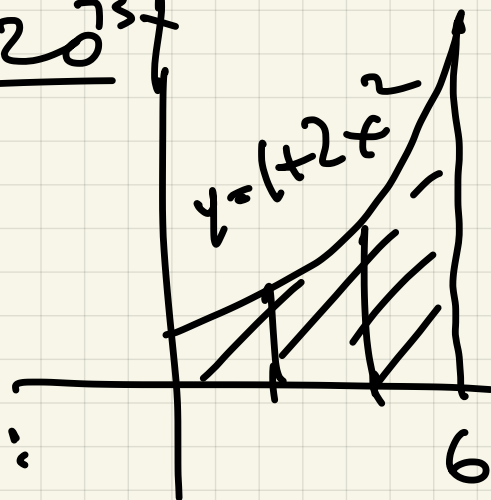


Quiz 20³



1.

(a) right end points:

$$c_1 = 2, c_2 = 4, c_3 = 6$$

$$\sum_{k=1}^3 f(c_k) \Delta x = 9(2) + 33(2) + 73(2) = 18 + 66 + 146 = 230.$$

(b) left endpoints

$$c_1 = 0, c_2 = 2, c_3 = 4$$

$$\begin{aligned} \sum f(c_k) \Delta x &= 1(2) + 9(2) + 33(2) \\ &= 2 + 18 + 66 = 86 \end{aligned}$$

$$2. \quad \sum f(c_k) \Delta x = \sum_{k=1}^n \left(1 + \frac{72k^2}{n^2} \right) \left(\frac{6}{n} \right) =$$

$$\sum_{k=1}^n \frac{6}{n} + \frac{72 \cdot 6}{n^3} \sum_{k=1}^n k^2 =$$

$$6 + \frac{72 \cdot 6}{n^3} \frac{n(n+1)(2n+1)}{6}$$

$$\lim_{n \rightarrow \infty} 6 + \frac{72(2n^2 + 3n + 1)}{n^2} = 6 + 72(2) = 150.$$