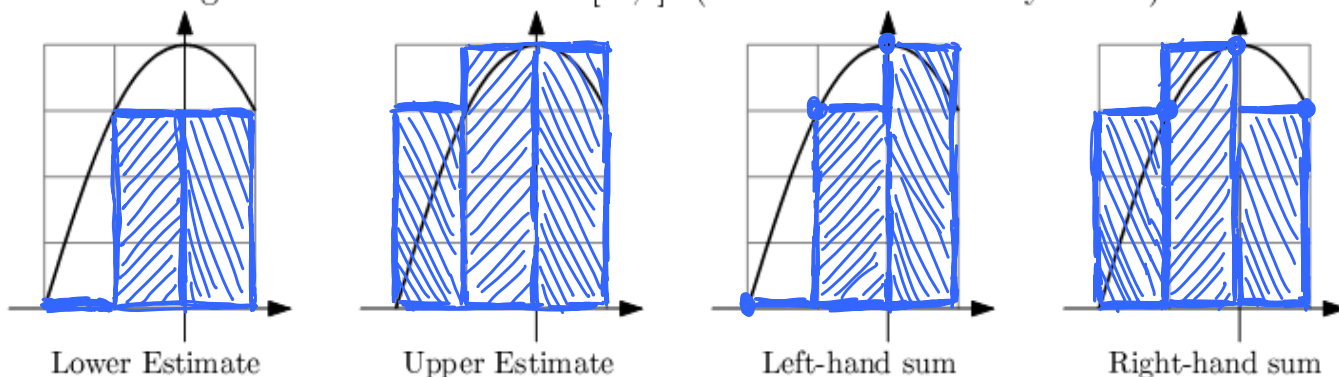


QUIZ 6 Solutions

Oct 22, 2007

1. In the graphs below carefully sketch rectangles for the corresponding estimates with $n = 3$ rectangles each on the interval $[-2,1]$. (Each box is a unit by a unit)



2. Kate is driving her car at speed given by $v(t) = 44 + 6 \cdot (.5)^t$. She started driving at $t = 0$ and rode for 4 hours.

(a) Estimate the distance traveled using Left Hand Sum with $n = 2$.

$$[a,b] = [0,4]$$

$$n=2$$

$$\Delta t = \frac{b-a}{n} = \frac{4-0}{2} = 2$$

t	0	2	4
$v(t)$	50	45.5	44.59

$$LHS = 2 \cdot 50 + 2 \cdot 45.5 = 191$$

(b) Estimate the distance traveled using Left Hand Sum with $n = 6$.

$$[a,b] = [0,4]$$

$$n=6$$

$$\Delta t = \frac{b-a}{n} = \frac{4-0}{6} = \frac{4}{6} = \frac{2}{3}$$

t	0	$\frac{2}{3}$	$\frac{4}{3}$	2	$\frac{8}{3}$	$\frac{10}{3}$	4
$v(t)$	50	47.78	46.38	45.5	44.94	44.59	44.37

$$LHS = \frac{2}{3} \cdot (50 + 47.78 + 46.38 + 45.5 + 44.94 + 44.59) = 186.13$$

(c) Using a calculator evaluate $\int_0^4 44 + 6 \cdot (.5)^x dx$ which gives the actual distance.

$$Y1 = 44 + 6 * (.5^x)$$

2nd Trace

7
0
4

$$\rightsquigarrow 184.1152$$

3. Expand the following into a summation and compute its value: $\sum_{i=3}^5 (3i - 7)^2$

$$\sum_{i=3}^5 (3i-7)^2 = \underset{i=3}{(3 \cdot 3 - 7)^2} + \underset{i=4}{(3 \cdot 4 - 7)^2} + \underset{i=5}{(3 \cdot 5 - 7)^2} = 2^2 + 5^2 + 8^2 = 4 + 25 + 64 = 93$$