

# 6.1 #3

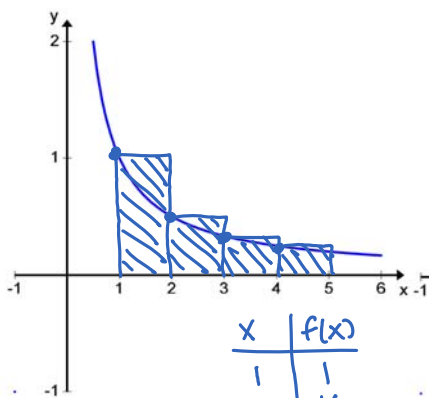
Monday, January 9, 2017 4:45 PM



## AP Calc AB Notes 6.1 Day 1

Name \_\_\_\_\_

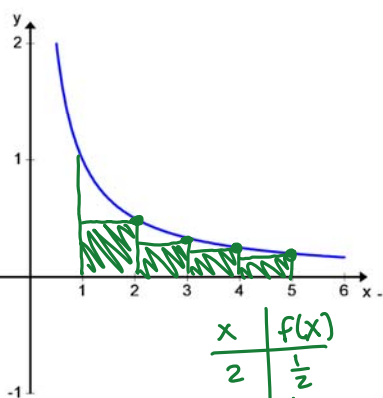
1. Use LRAM, RRAM, and MRAM with 4 subintervals to estimate the area between the curve and the x-axis where x is between 1 and 5 for the function  $f(x) = \frac{1}{x}$ . Sketch the rectangles on the graph and show all work.



LRAM<sub>4</sub>:

x	f(x)
1	1
2	1/2
3	1/3
4	1/4

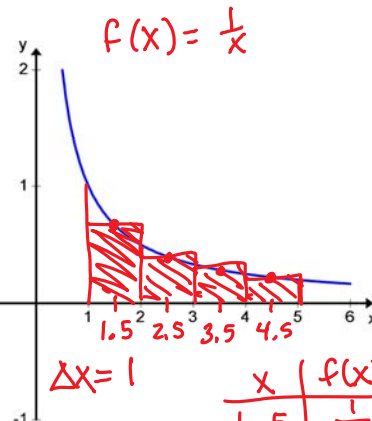
$$A = 1(1) + 1\left(\frac{1}{2}\right) + 1\left(\frac{1}{3}\right) + 1\left(\frac{1}{4}\right) \approx 2.083$$



RRAM<sub>4</sub>:

x	f(x)
2	1/2
3	1/3
4	1/4
5	1/5

$$A = 1\left(\frac{1}{2}\right) + 1\left(\frac{1}{3}\right) + 1\left(\frac{1}{4}\right) + 1\left(\frac{1}{5}\right) \approx 1.283$$



MRAM<sub>4</sub>:

$f(x) = \frac{1}{x}$

$\Delta x = 1$

x	f(x)
1.5	1/1.5
2.5	1/2.5
3.5	1/3.5
4.5	1/4.5

$$A = 1\left(\frac{1}{1.5}\right) + 1\left(\frac{1}{2.5}\right) + 1\left(\frac{1}{3.5}\right) + 1\left(\frac{1}{4.5}\right) \approx 1.575$$



### Estimating Area Under a Curve – Using a Table

The amount of rainfall is measured at one hour intervals over the course of a 6 hour rainstorm.

Time (hours)	Rainfall (in/hr)
0	0
1	0.5
2	0.6
3	1.3
4	1.6
5	1.8
6	1.0

Estimate the total amount of rainfall in 6 hours using LRAM and RRAM. (How many partitions should we use? Why can't we find MRAM?)