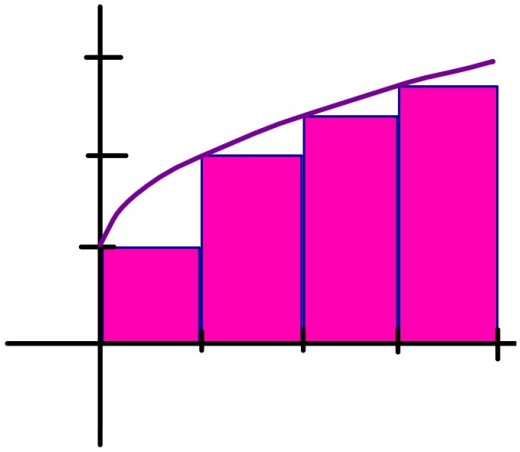
October 31

How can you use rectangles to estimate the area under a curve?

October 31

Students will verbally explain how to estimate the area under a curve using RAM

(using the words:
right, left, midpoint, area, bounds, exact, approximation…)



$y = \sqrt{x} + 1$

Interval	x-value	y-value/ height	Width	area
$0 \to 1$	0	1	1	1
$1 \to 2$	1	2	1	2
$2 \to 3$	2	$\sqrt{2}+1$	1	$\sqrt{2}+1$
$3 \to 4$	3	$\sqrt{3}+1$	1	$\sqrt{3}+1$

8.146

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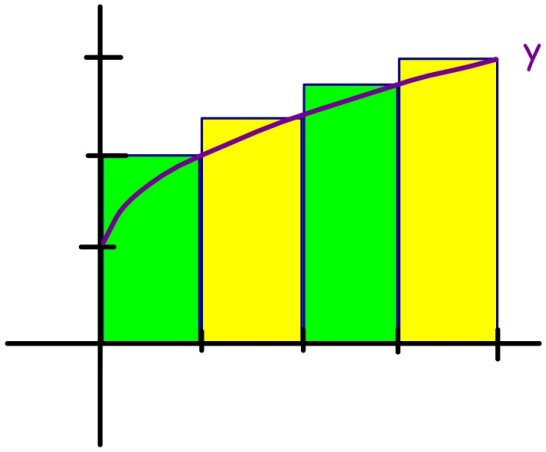
RAM Rectangular Approximation Method

LRAM use the left-hand endpoint of the interval to calculate the height (y-value)

RRAM use the right-hand endpoint of the interval to calculate the height (y-value)

MRAM use the midpoint of the interval to calculate the height (y-value)



10.146

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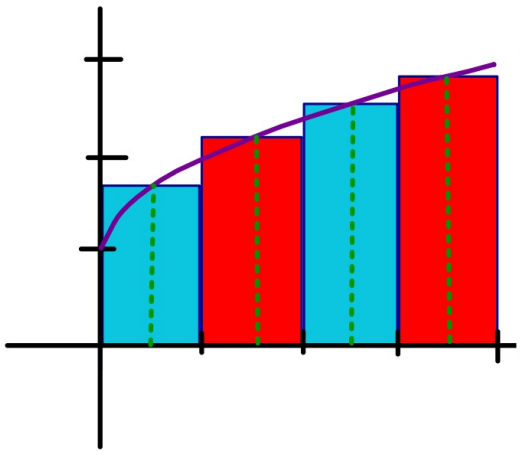
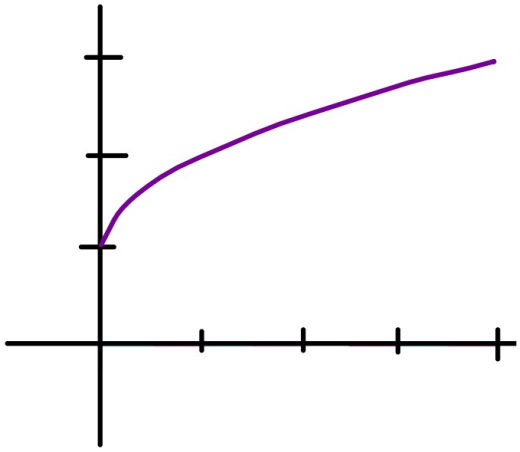


Interval	x-value	y-value/ height	Width	area
0→1	.5	√.5+1	1	√.5+1
1→2	1.5	√1.5+1	1	√1.5+1
2→3	2.5	√2.5+1	1	√2.5+1
3→4	3.5	√3.5+1	1	√3.5+1

9.382



Interval	x-value	y-value/ height	Width	area