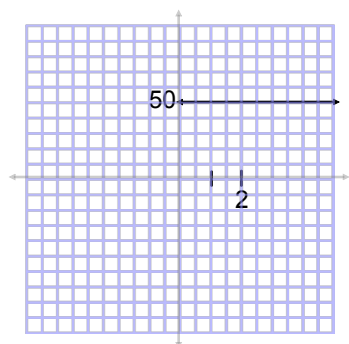


5.1a Estimating with finite Sums

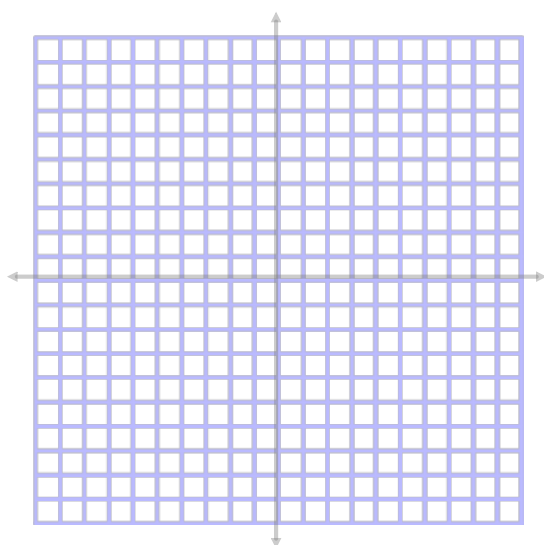
Find the area under the curve:

if a car is driving 50 mph for 2 hrs, how far has it gone?



Nov 9-8:15 PM

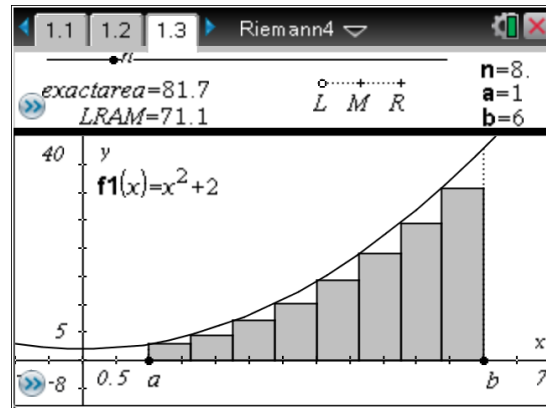
if a cars velocity is described by $v(t)=3x+1$, how far has it gone in 3 hours?



Nov 9-9:39 PM

a cars velocity is described by $v(t) = x^2 + 2$

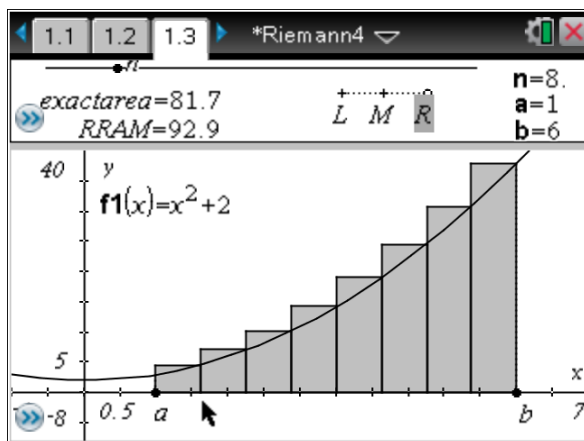
Find the area under the curve:



these are left hand rectangles! An equation for the sum:

Nov 9-8:21 PM

Find an equation for the sum of the right hand rectangles:



```

1.1 *Unsaved
rram
Define LibPub rram(a,b,n)=
Func
Return  $\sum_{i=1}^n (f(a+i \cdot dx)) \cdot dx \left( dx = \frac{b-a}{n} \right)$ 
EndFunc
    
```

Nov 9-8:21 PM

exactarea=81.7
MRAM=81.5

$f1(x) = x^2 + 2$

$n=8$
 $a=1$
 $b=6$

"mram" stored successfully

Define LibPub **mram**(a,b,n)=
Func
Return $\sum_{i=0}^{n-1} \left(f\left(a + \frac{dx}{2} + i \cdot dx\right) \cdot dx \right) \Big|_{dx = \frac{b-a}{n}}$
EndFunc

Nov 9-9:01 PM

Name: rram
Type: Function
Library Access: LibPub (Show in Catalog)

Define LibPub **rram**(a,b,n)=
Func
Return $\sum_{i=1}^n (f(a+i \cdot dx)) \cdot dx \Big|_{dx = \frac{b-a}{n}}$
EndFunc

save in mylib

Nov 9-9:30 PM

The image shows two screenshots of a TI-84 Plus calculator interface. The top screenshot shows the definition of a function named **lram**. The bottom screenshot shows the definition of a function named **mram**. Both functions are defined as LibPub functions and return the value of a Riemann sum approximation of an integral.

lram function definition:

```

"lram" stored successfully
Define LibPub lram(a,b,n)=
Func
Return  $\sum_{i=0}^{n-1} (f(a+i \cdot dx)) \cdot dx | dx = \frac{b-a}{n}$ 
EndFunc

```

mram function definition:

```

"mram" stored successfully
Define LibPub mram(a,b,n)=
Func
Return  $\sum_{i=0}^{n-1} \left( f\left(a + \frac{dx}{2} + i \cdot dx\right) \cdot dx \right) | dx = \frac{b-a}{n}$ 
EndFunc

```

refresh libraries!

Nov 9-9:37 PM

The image shows a screenshot of a TI-84 Plus calculator interface. The top of the screen shows the definition of the function **f(x) = cos(x)**. Below this, the results of the **lram** and **mram** functions are displayed for different values of **n**.

Function Call	Result
$lram \setminus mram\left(0, \frac{\pi}{2}, 10\right)$	1.07648
$lram \setminus mram\left(0, \frac{\pi}{2}, 100\right)$	0.992125
$lram \setminus mram\left(0, \frac{\pi}{2}, 1000\right)$	1.

4/99

Nov 9-9:50 PM