

[Maple Notes on Smith-Minton Ch. 4 Integration

[4.1 Area under a curve

[Placing the cursor on the line of interest; hit the left mouse button; press enter. This will execute that line of Maple code. The Maple code all appears in red. The results are blue. Instructions to Maple end with a semicolon or a colon. Those ending with a colon suppress the display of results.

[> **factor(sum(i,i=1..n));**

[> **factor(sum(i^2,i=1..n));**

[> **factor(sum(i^3,i=1..n));**

[> **factor(sum(i^4,i=1..n));**

[The with command loads a Maple package with supplementary code required for what follows. It must be executed for the later code to work.

[> **with(Student[Calculus1]):**

[The command below generates an animation. Execute it in the usual way, then click on the graph. Press the play button that appears on the menu bar.

[> **ApproximateInt(3*x^2+2*x+1, 0..1, output=animation, partition=4, refinement=halve, subpartition=width, method=left, iterations=253, showpoints=false);**

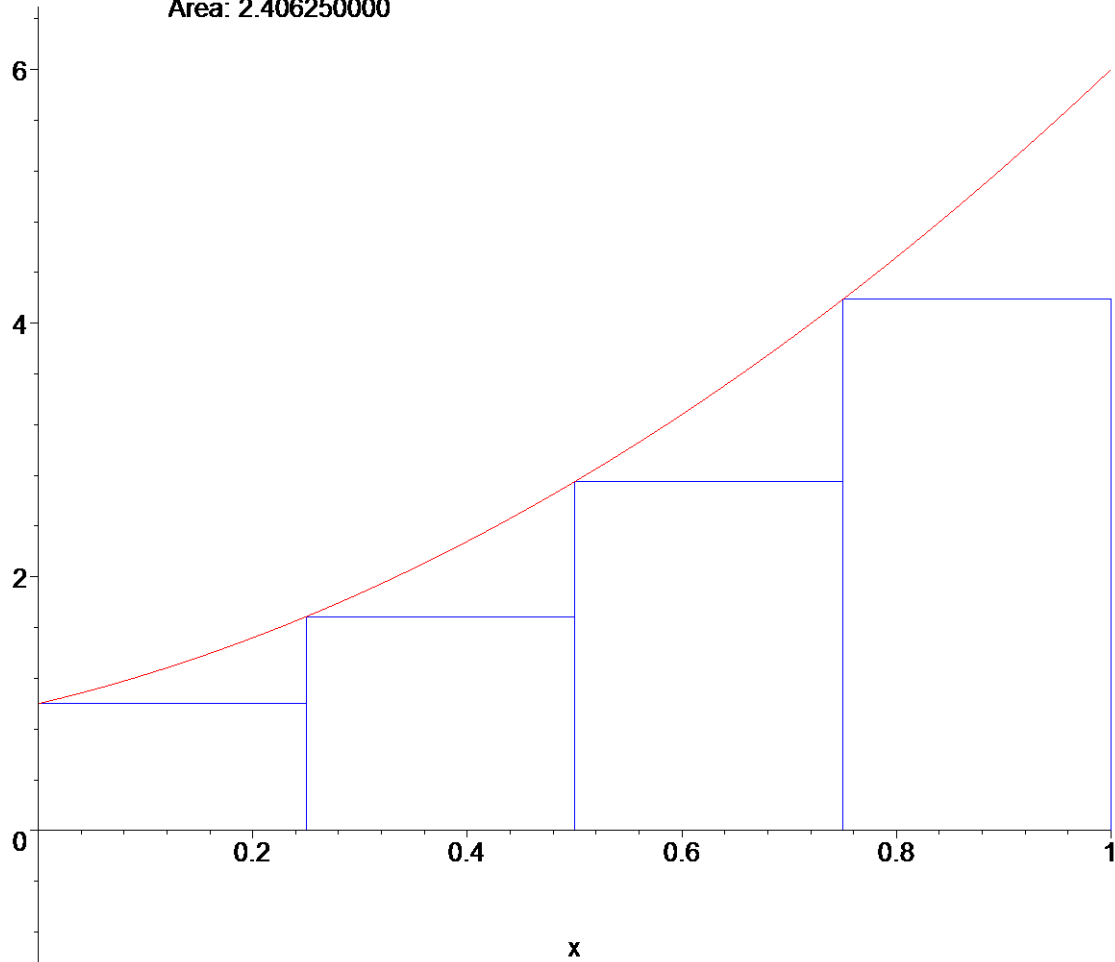
An Approximation of the Integral of

$$f(x) = 3x^2 + 2x + 1$$

on the Interval $[0, 1]$

Using a Left-endpoint Riemann Sum

Area: 2.406250000



Partitions: 4

```
> ApproximateInt(3*x^2+2*x+1, 0..1, output=animation, partition=4,  
refinement=halve, subpartition=width, method=right, iterations=253,  
showpoints=false);
```

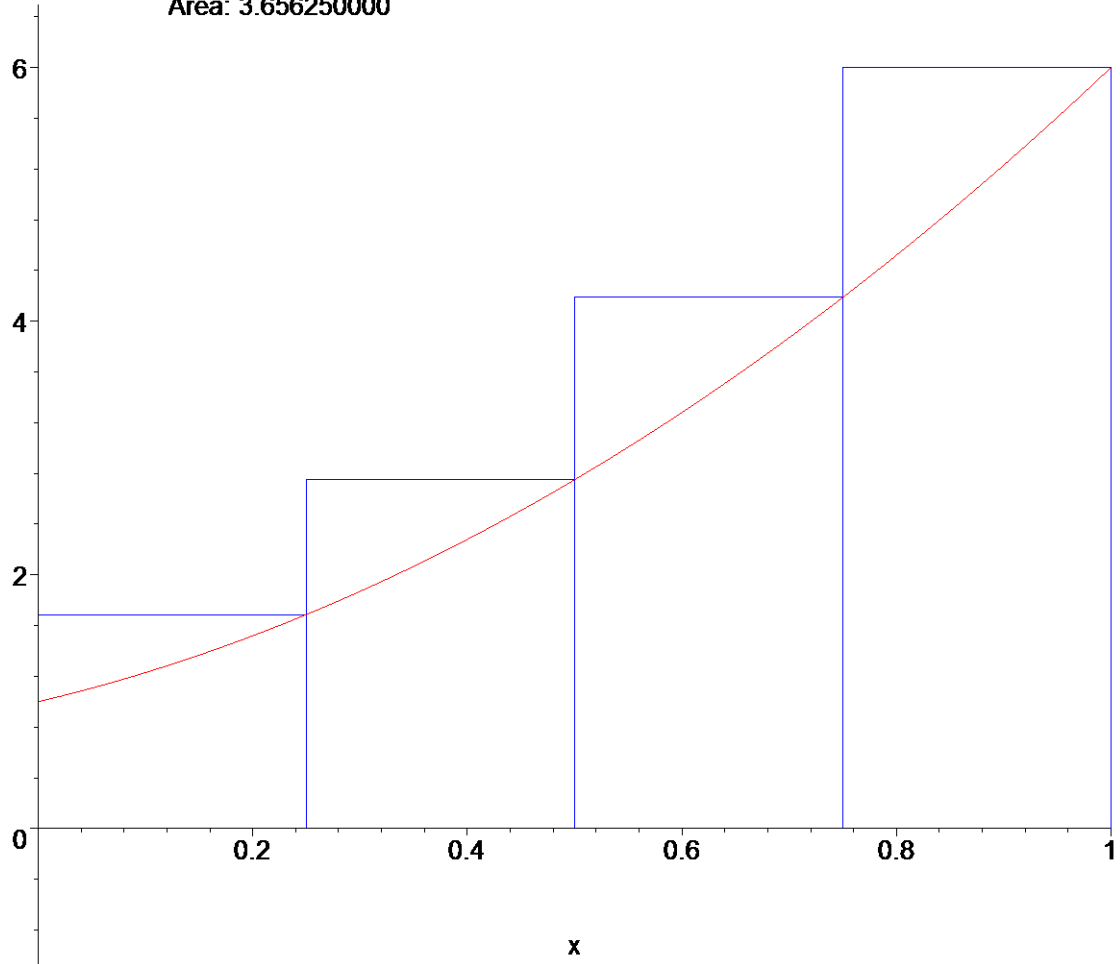
An Approximation of the Integral of

$$f(x) = 3x^2 + 2x + 1$$

on the Interval $[0, 1]$

Using a Right-endpoint Riemann Sum

Area: 3.656250000



Partitions: 4

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