

| | | | | | | | | | | | | | |
|---|---|---|---|--|---|---|---|---|---|--|--|--|--|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| L | A | S | T | | N | A | M | E | S | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|--|---|---|---|---|---|--|--|--|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| F | I | R | S | T | | N | A | M | E | S | | | |

MATH 2301 GW31: The Average Value of a Function on an Interval
(and Advice About Simplifying: Simplify Before Multiplying!!)

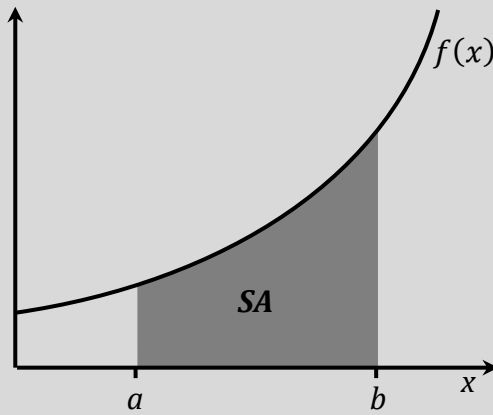
Definition of the Average Value of a Function Over an Interval

words: The Average Value of $f(x)$ over the interval $[a, b]$.

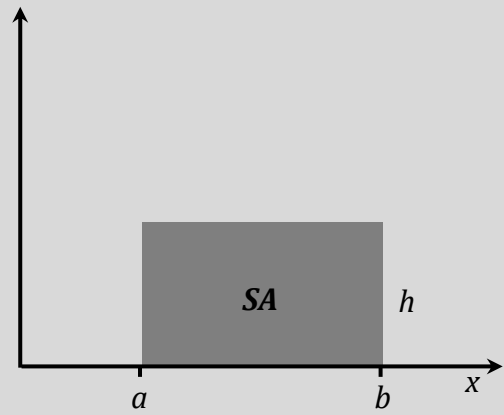
Usage: The function $f(x)$ is continuous on the interval $[a, b]$.

Meaning: The number h given by this formula: $h = \frac{1}{(b - a)} \int_a^b f(x) dx$

Graphical Interpretation: The number h is the height of a rectangle sitting on the interval $[a, b]$ that would enclose a signed area that is equal to the signed area of the graph of f on the same interval.



$SA = SA$



Advice about simplifying: I have written the problem for this group work using numbers that will hopefully draw your attention to an issue that I notice on much of your written work:

Many of you are too eager to multiply numbers before you have simplified an expression.

The result is often that your later simplification is much harder than it needs to be.

In the problem for this group work, if you simplify (including factoring) the expression that you need to compute, you will find that it is easy to compute without a calculator. But if you choose to multiply before simplifying, your work will be much harder. **Simplify Before Multiplying!**

Without a calculator, compute the average value of $f(x) = \frac{31421}{\sqrt{x}}$ over the interval $[36, 49]$.