

## Section 7.5: Average Value

**Definition** Let  $f(x)$  be a function defined on the interval  $[a, b]$ . Then the average value of  $f(x)$  from  $x = a$  to  $x = b$  is

$$f_{ave} = \frac{1}{b-a} \int_a^b f(x) dx$$

A short proof of this formula will be done below:

1. Find the average value of  $f(x) = \frac{1}{x}$ ,  $1 \leq x \leq 4$ .



4. Find the value(s)  $b$  such that the average value of  $f(x) = 2 + 6x - 3x^2$  on the interval  $[0, b]$  is equal to 3.