

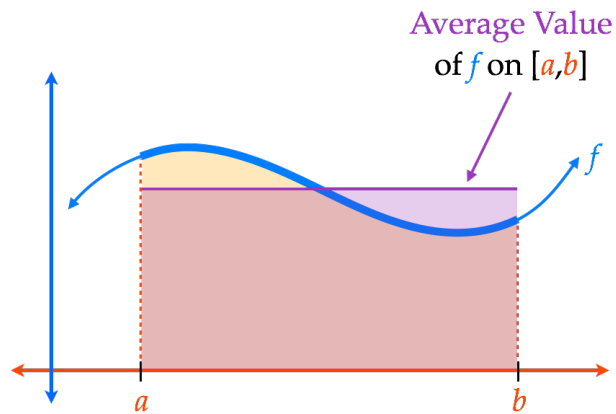
The Average Value of a Function

Name _____

Date _____ Period _____

The **Average Value** of a **Function**If f be integrable on $[a,b]$, then

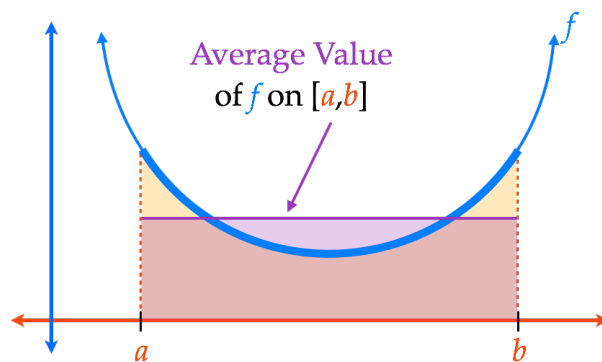
$$\text{Average Value of } f \text{ on } [a,b] = \frac{1}{b-a} \int_a^b f(x) dx$$



Area under f on $[a,b]$ = Area under average value of f on $[a,b]$

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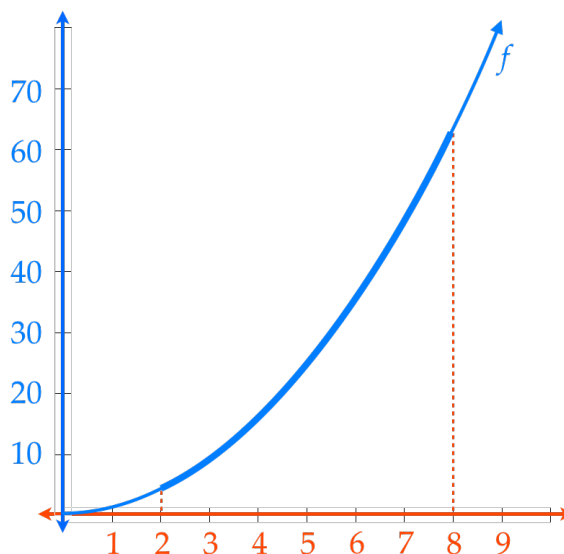
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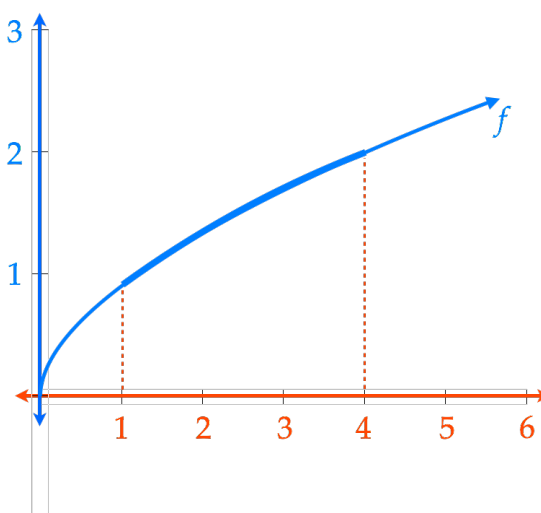
Find the **Average Value** of the following

$$f(x) = x^2 \text{ on } [2, 8] \quad \frac{1}{b-a} \int_a^b f(x) \, dx$$



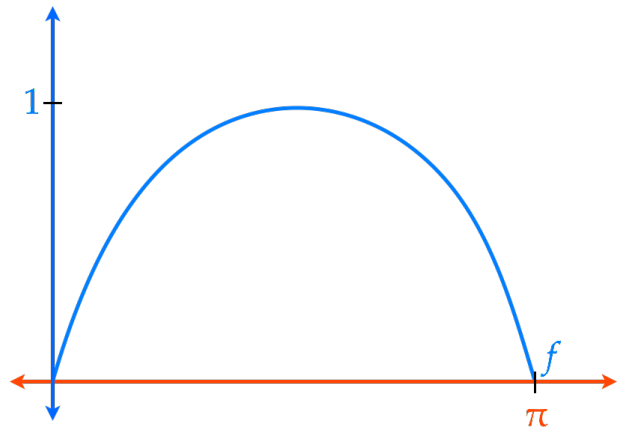
Find the **Average Value** of the following

$$f(x) = \sqrt{x} \text{ on } [1, 4] \quad \frac{1}{b-a} \int_a^b f(x) \, dx$$



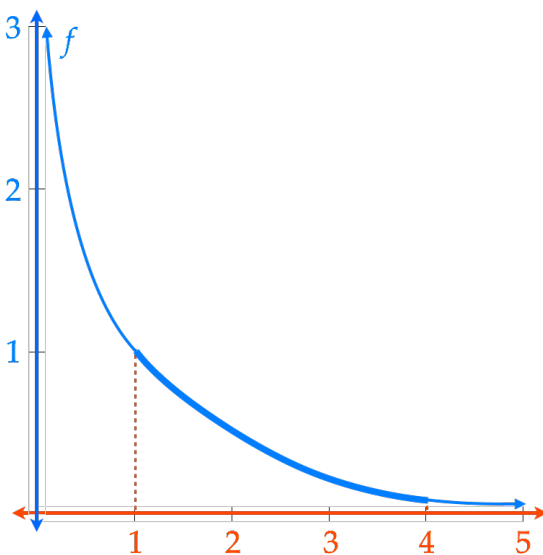
Find the **Average Value** of the following

$$f(x) = \sin x \text{ on } [0, \pi] \quad \frac{1}{b-a} \int_a^b f(x) dx$$



Find the **Average Value** of the following

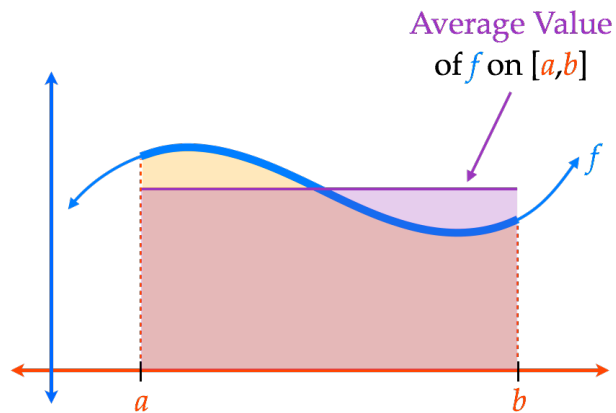
$$f(x) = \frac{1}{x^2} \text{ on } [1, 4] \quad \frac{1}{b-a} \int_a^b f(x) dx$$



The **Average Value** of a **Function**

If f be integrable on $[a, b]$, then

$$\text{Average Value of } f \text{ on } [a, b] = \frac{1}{b-a} \int_a^b f(x) dx$$



Area under f on $[a, b]$ = **Area** under **average value** of f on $[a, b]$