Theorem of the Mean Value
i.e. AVERAGE VALUE

If the function $f(x)$ is continuous on $[a, b]$ and the first derivative exists on the interval (a, b), then there exists a number $x = c$ on (a, b) such that

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

This value $f(c)$ is the "average value" of the function on the interval $[a, b]$.

The Average Value of a Function:

Average value of $f(x)$ on $[a, b]$ $\quad f_{AVE} = \frac{1}{b-a}\int_a^b f(x)\, dx$

Average Value

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

$f(c)$ is the average value

Average Value of a Function

If a function f is continuous on the interval [a, b], the average value of that function f is given by

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