

Class 11: More Fundamental Theorem of Calculus

Evaluating Definite Integrals

Calculus II

College of the Atlantic. Feb 2, 2023

1. Find the following definite integrals using the fundamental theorem of calculus:

$$\int_1^3 4x \, dx \quad (1)$$

$$\int_1^3 4t \, dt \quad (2)$$

$$\int_0^{\pi/2} \cos(x) \, dx \quad (3)$$

$$\int_0^{2\pi} \cos(x) \, dx \quad (4)$$

$$\int_{-2}^2 y^5 \, dy \quad (5)$$

2. What is the average value of $\cos(x)$ from $x = 0$ to $x = \pi/2$? Represent this average value graphically.
3. What is the area of the shape bounded by the function $f(x) = x^2$, the x-axis, and the line $x = 1$?