

Lesson 7 - The Fundamental Theorem of Calculus I

Objectives

- Understand the first part of the Fundamental Theorem of Calculus.
- Have a graphical understanding of the relationship between the derivative and the antiderivative.
- Learn and memorize the antiderivatives of the functions x^n , $\frac{1}{x}$, e^x , $\cos x$, and $\sin x$.

READ

- Stewart, Chapter 4.9, pages 340-341
- Stewart, Chapter 5.3, pages 379-384

THINK ABOUT

- Can you explain how the derivative (a rate of change) and an integral (area between a curve and the x axis) are inverse processes of each other?
- What does this expression mean in words:

$$\frac{d}{dx} \int_a^x f(t) dt$$

- Can you see how the Fundamental Theorem of Calculus unites MA104 with MA205?

MATHEMATICA COMMANDS AND TASKS YOU NEED TO KNOW

Previous integration commands.