Class 20: Improper Integrals

Calculus II

College of the Atlantic. Feb 19, 2025

1. What is the value of the following improper integral?

$$\int_0^\infty e^{-t}\,dt\ . \tag{1}$$

2. What can you say about this integral?

$$\int_0^\infty \sin(t)\,dt\ . \tag{2}$$

   Don't try to evaluate it. Just figure out if it approaches a number, gets larger and larger, or if it wiggles forever.

3. What about this integral?

$$\int_0^\infty \sin(t)e^{-t}\,dt\ . \tag{3}$$

   Does it approache a number, get larger and larger, or if it wiggle forever? Why?