**Fundamental Theorem of Calculus**

* Area under the curve of a continuous function f can be written as a definite (Rieman) integral.
  + Graph of function f on interval a, b
  + Pick a midpoint, x
  + : area under curve from a to x
* Fundamental Theorem of Calculus
  + Every continuous function f has an antiderivative F(x)
  + Connection between derivative / integration
* Applying to an example problem
  + Lower boundary does not matter
  + Intro about next video

**Proving Trigonometry Using Euler’s Formula**

* Proof of
  + Euler’s formula
  + cos(x) = cos(-x), sin(x) = sin(-x)
* Proof of Angle sum formula
  + If two complex numbers are equal, their real and imaginary parts must be equal
* Special case: double angle formula

**Uniform Distribution**

* (definition) property of Uniform distribution
  + lower bound, upper bound: parameters of uniform random variable
  + Equally likely to take any value between lower bound and upper bound
  + flat (constant) graph
* Parameters of a uniform distribution
  + PDF of X,
  + CDF of X
  + MGF of X
  + Expected value of X
  + Variance of X
* Derivation of CDF
  + 0 if x < a, if a<=x<=b and 1 if b<x
  + Deriving the CDF from area of rectangle under graph